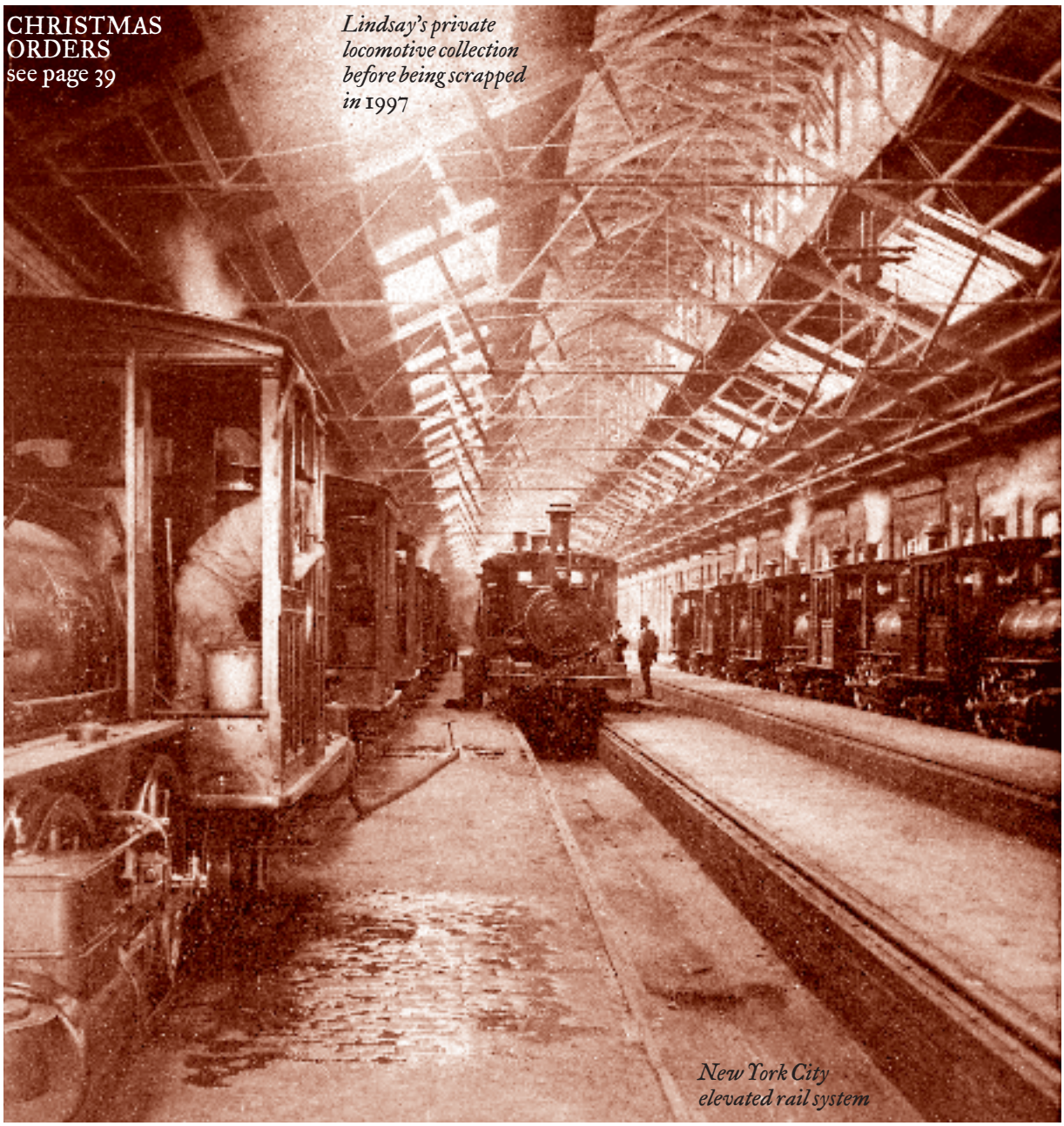
Lindsay's TECHNICAL BOOKS

661
Christmas
2011

Exceptional technical resources to feed the creative minds of "Big Dogs."

[Little Dogs who can't run with the Big Dogs must stay on the porch, lick themselves, and watch the rest of us have fun!]

CHRISTMAS ORDERS
see page 39



Lindsay's private locomotive collection before being scrapped in 1997

New York City elevated rail system

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Here you find a few sample pages from a recent catalog.

Most catalogs run 48 to 64 pages and are mailed at no charge to qualified customers.

If you have never received a catalog, request one.

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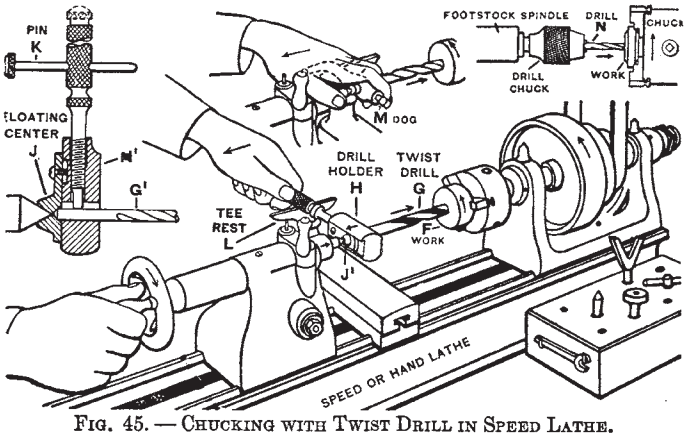


FIG. 45. — CHUCKING WITH TWIST DRILL IN SPEED LATHE.

Advanced Machine Work

by Robert H. Smith
reprinted by
Lindsay Publications

Here's the best general machine shop book I've ever seen old or new. Smith brought out this book in 1915, updating it in 1925. That makes it new enough to still be of great value, but old enough to contain a many techniques that are no longer taught.

You get easy-to-read text, step-by-step instructions, and great illustrations. Modern books are prettier, but they cannot possibly do a better job of teaching.

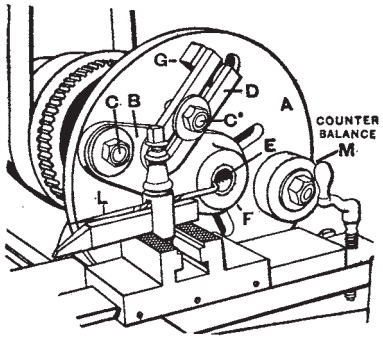


FIG. 7. — TESTING LOCATION OF ENGINE CRANK ON FACE PLATE.

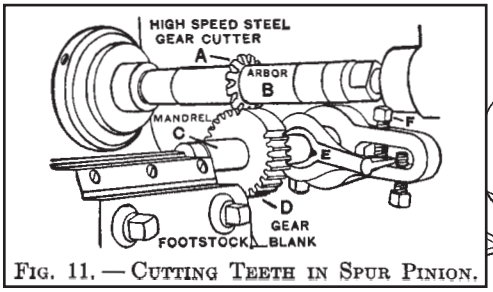
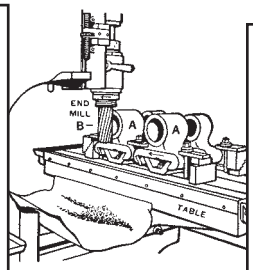
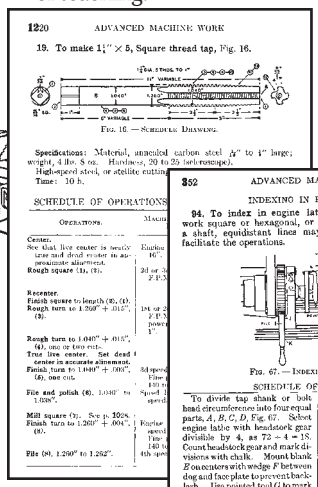


FIG. 11. — CUTTING TEETH IN SPUR PINION.





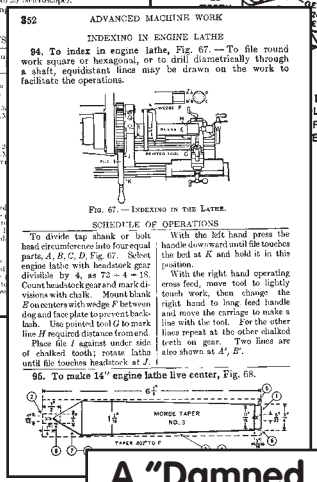
1220 ADVANCED MACHINE WORK

19. To make 1¼" × 5, Square thread tap, Fig. 16.

FIG. 16. — SCHEDULE DRAWING.

Specifications: Material, annealed carbon steel ⅛" to 4" bars; weight, 4 lbs. 8 oz. Hardness, 20 to 25 Scleroscope. High-speed steel, or stellite cutting Time: 10 h.

SCHEDULE OF OPERATIONS



352 ADVANCED MACHINE WORK

INDEXING IN ENGINE LATHE

94. To index in engine lathe, Fig. 67. — To file round work square or hexagonal, or to drill diametrically through a shaft, equidistant lines may be drawn on the work to facilitate the operations.

FIG. 67. — INDEXING IN THE LATHE.

SCHEDULE OF OPERATIONS

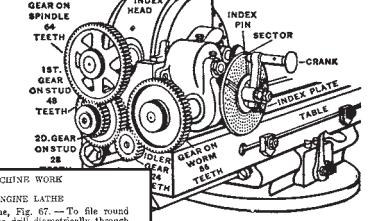
To divide tap shank or bolt head circumference into four equal parts, *A*, *B*, *C*, *D*, Fig. 67. Select engine lathe with headstock gear divisible by 4, as 72 ÷ 4 = 18. Count headstock gear and mark divisions with chalk. Mount blank *E* on centers with wedge *F* between dog and face plate to prevent backlash. Use pointed tool *G* to mark lines *H* required distance from end.

Place file *I* against center side of chalked teeth as gear. Two lines are also shown at *A'*, *B'*.

With the left hand press the handle downward until file touches the bed at *K* and hold it in this position.

With the right hand operating cross feed, move tool to lightly touch work, then change the right hand to long feed handle and move the carriage to make a line with the tool. For the other lines repeat at the other chalked teeth as gear.

95. To make 14" engine lathe live center, Fig. 68.



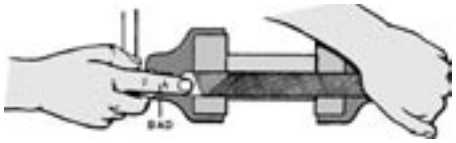
EXAMPLE
PLAIN INDEXING 245 DIVISIONS.
LE CIRCLE, 8 HOLES
POUND GEARING TO 257 DIVISIONS.
ECTOR GRADUATION 30)

Elements of Machine Work

by Robert H. Smith

Here it is, the companion book to ADVANCED MACHINE WORK (AMW). And it's quite a nice book even though it covers simpler material than AMW.

"Advanced" refers to PRINCIPLES OF MACHINES WORK as being a companion book. Titles were changed, and editions enlarged. Trust me when I say if you have "Advanced" and "Elements" you will have everything available. Forget about "Principles". Everything in that book



(and more) is included in these two books.

Contents include: materials used for machine construction, measuring, laying out, chipping, tool grinding, files, hand and machine filing, scrapers, scraping and standard surface plates, polishing, annealing, hardening & tempering, high-speed steel, case-hardening, pipe and pipe fittings, hand and machine methods of piping, straightening and bending, peening and riveting, hand drilling, soldering, brazing, babbitting, power transmission, aligning and leveling shafting and installing machines, and more.

If you have ADVANCED MACHINE WORK, you know how this book is laid out: lots of illustrations and step-by-step instructions. It is nowhere as large as Advanced, but it does an excellent job on the basic material it presents. A lot of this may be too basic for you, but I'm sure you'll learn something new nonetheless.

So order a copy so that you have both of Smith's classic books. Great material, but you already know that. Get one!

5-1/2 x 8-1/2 hardcover 192 pages
No. 21770 $22.95

"Advanced" covers everything you can imagine from basic operation of a micrometer and vernier caliper, to the testing of machine tools for accuracy. You'll learn the different methods of turning tapers and their fitting, detailed instructions on cutting threads, making bolts and nuts, face plates and chucks, mounting work, turning flanges and pulleys, boring, threading, cutting square threads bolts and nuts, cutting multiple threads, knurling, and much more.

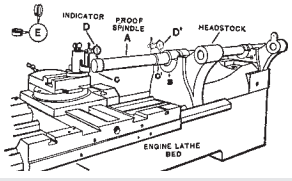
You'll learn about drilling jigs, eccentric turning, facing large cylinders, use of steadies and followers, external and internal grinding, and the grinding of piston rings, milling cutters, reamers, and more.

Chapter nine covers planers and their use. Learn to plane keyways, lathe beds, vises, and more.

In learning to use a milling machine you'll groove taps, flute reamers, mill T-slots in a circular table and more.

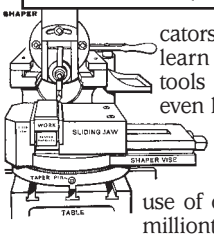
And there's so much more on everything from gear cutting to making mandrels, taps, twist drills, using indicators, sine bars and more. You'll learn how to make expensive tools that you now buy. You'll even learn how to check the accuracy of lathes, milling machines, drill presses, and lead screws, and even use of optical flats to measure to millionths of an inch!

Just about everything you can imagine in amazing detail. This baby delivers! A bargain! Worth twice the price. I recommend it highly. People rave about it. Order yourself a copy today. 6x9 hardcover 800 pages heavily illustrated
No. 4236 $29.95



A "Damned Fool" Book!

People who have seen this book claim *"Anyone who considers himself a machinist and doesn't have a copy of this must be a damned fool!"* (I can identify with that...)



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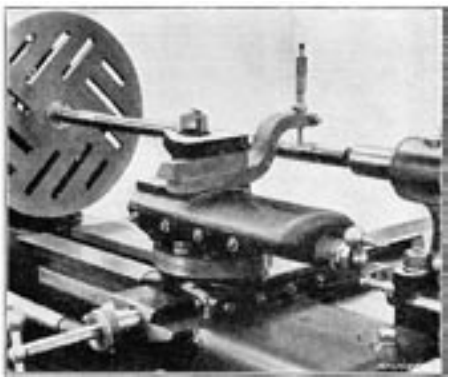
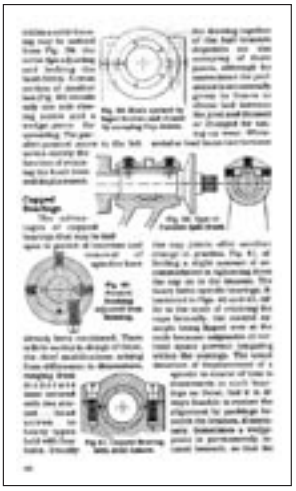
Machine Tool Adjustment





articles from MACHINERY MAGAZINE *reprinted by Lindsay Publications*

Post-WWI era articles from Machinery magazine on machine tools and their testing and adjustment.

A fascinating article on new Drummond lathes explains their features, the design logic behind them, and photos and descriptions of quality control tests run on the lathe before shipment.

Next, from July 1919 comes a fascinating article that told British machinists how they could take their lathes almost worn out from WWI production, and restore them to factory accuracy in order to get years more life from them. Here you will learn how to make test measurements, and how to calculate how much metal should scraped from what portion of the headstock and saddle to swing the spindle around into alignment, or lower it to make the tailstock line up, or whatever else might be needed. You get sample calculations and incredible nuts-and-bolts tips on restoring a lathe to accuracy. This one article is worth the price of the whole booklet. Amazing how-to.

Next, you get a lengthy two part article on lathe bearings. This is about older bronze, brass and even steel bushings and sleeves, not ball- or roller-bearings. These very simple bearings could give incredible performance. You get valuable tips on the advantages of one type of bearing over another, and how they could deliver years of precise work so long as they were lubricated and adjusted properly.

Finally a short article takes you to the Pratt & Whitney factory to see lathe lead screws being tested.

Great articles for the builder, restorer, or dreamer. Fun reading. Worth twice the price. Get one. 5-1/2 x 8-1/2 booklet 47 pages

No. 22180 $5.95

Bench Lathe Manufacture and Hand Scraping

reprinted by Lindsay Publications

In this series of articles reprinted from Machinery Magazine about 1921 you get details on how precision bench lathes were quickly and accurately built. You'll walk through the Potter and TLM factories in England and see beds being milled, headstocks being bored and aligned, bearing cones being ground, dovetails being milled and much more.

These articles were written for other manufacturers and reveal jigs, fixtures, and procedures that circumvent problems, improve accuracy, and increase production rates. You get tips, innovations, and industrial "secrets." You get page after page of photos of components being machined and the set-ups used.

You also get a short but beautifully illustrated article on handscraping, used not only for fit but for decorative effect as well. These eight pages are worth the price of the booklet alone.

Entertaining and educational. Get a copy! 5-1/2 x 8-1/2 booklet 48 pages

No. 22164 $5.95

The Trials of Old Baldy

American Machinist Magazine - 1920

By A. R. Durant

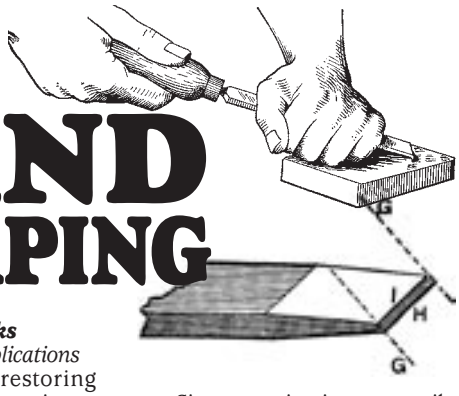
Old Baldy, the somewhat autocratic boss of the old Ajax Works, though austere and forbidding on first acquaintance, possessed a strong sense of humor and a commendable respect for justice. He could tell a bluffer as far as he could see him, and occasionally put one of them on the payroll apparently for the sake of having some fun with him.

One such came to work one morning and after falling down on several minor jobs Old Baldy asked him if he could run a "Dutch planer." Mr. Bluffer looked longingly out of the tail of his eye at Slim Benson, who was sitting on a soap-box and leaning comfortably against a post as he presided over the deliberate movements of the big planer at the end of the shop, as he replied: Oh, yes! I ran one for years up at the old Dingumbob works – the biggest one in the shop, too!"

"Well!" says Baldy, producing a 14-in, bastard file from a nearby bench drawer, "here is the biggest one we got; you can take the roughing cut over that row of castings there on the bench."

Mr. Bluffer took a cut 'cross-lots in the direction of the nearest saloon. He hasn't come back yet.

Learning the Lost Art of HAND SCRAPING



from Eight Classic Machine Shop Textbooks

reprinted by Lindsay Publications

Building and/or restoring machine tools requires scraping to bring surfaces to a precision fit. For years we offered a small booklet entitled Old Time Mechanics that included a brief introduction to scraping. That article and seven additional are included in this new anthology.

You don't find scraping described in modern machine shop texts. You have to go back a century or more when it was a required machinist skill. Here you get articles starting with Appelton's 1880 Cyclopaedia of Applied Mechanics and progressing through the 1917 edition of Machinery's Encyclopedia.

Since scraping is more easily learned by doing than by reading, you'll find that all the articles here cover essentially the same material, and many use almost the same illustrations. But each author adds his own special twist. Probably the most difficult part in getting started is knowing how to grind a scraper to the "right" shape. And you'll get good advice on that in these pages.

Great info gleaned from the Lindsay Publications library. Read it, sharpen an old file, and start scraping. This can help. Get a copy. 5-1/2 x 8-1/2 booklet 48 pages

No. 23225 $4.95

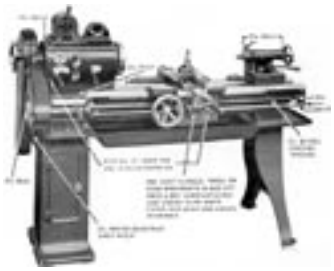
Keep Your Lathe in Trim

by South Bend Lathe Works
reprinted by Lindsay Publications

Learn how to "make all necessary adjustments, check power supply, protect lathe from abuse, and keep lathe in best operating condition."

This fifty year old booklet certainly won't tell you how to rebuild a lathe, but it WILL show you how to do the routine adjustments necessary to keep a lathe operating like new. Great little booklet. Get one. 5-1/2 x 8-1/2 booklet 28 pages

No. 21389 $3.95



Running a Regal Lathe

by the LeBlond Machine Co
reprinted by Lindsay Publications

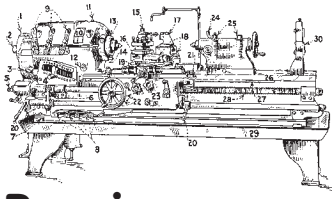
This 1943 book is just a bit different from the South Bend's "How to Run a Lathe". In addition to the essential how-to instruction that applies to any small lathe, you'll also get inside information on the special LeBlond features.

Learn about setting up your lathe with levels, getting acquainted with parts, and the all the rest. You get photos and mechanical drawings of the headstock, reverse plate, quadrant, quick change mechanism, apron with power cross feed, and more.

You get useful details on adjusting the spindle and lubrication. You'll find surprising detail in the chapters on necessary tooling like dogs, chucks, and the use of calipers. And you'll find all the usual essential lathe info, again in sufficient detail, such as grinding tools for chasing, cutting-off, boring, and turning. You'll learn how to use the compound rest, the follow rest, the grinding attachment, micrometers stops, milling attachment, steady rest, taper attachment and so on.

You'll learn the essentials of cutting threads, mounting work on faceplates, in chucks, with angle plates and more. You get discussions on facing to length, filing, reaming, shoulder and radius forming, tapping, chasing threads, lapping, as well as tables of drill sizes, grinding fit tolerances, standard thread specs, cutting speeds and more.

Like the other small lathe manuals we offer, this provides great information. A lot like the others, but special in its own way. Worth having. The price is right. Get one.
5-1/2 x 8-1/2 softcover 116 pages
No. 22997 $7.95



Running an Engine Lathe

by Fred H. Colvin
reprinted by Lindsay Publications

If you're just starting out using a metal cutting lathe, or you're trying to learn techniques you feel you should have known all along, then grab this. This small, but jam-packed book will show you all the basic techniques of running a lathe.

Thirteen chapters cover the engine lathe, centering lathe work, driving the work, tools and turning, steady and follower rests, faceplate work, chucks and chucking, boring tools, taper turning, cutting screwthreads, test indicators and their use, three types of centering mandrels and care of the lathe.

You'll learn all about essential operations in easy-to-read and understand text illustrated with simple, clear drawings. You'll learn about different kinds of dogs (not the barking type), split collars, toolholder and bits, work with shoulders, boring the end of a bar, home-made follower rest, saving a poor casting, bridle for faceplate work, slotted chucks for flat work, precision drilling, boring cylinders,

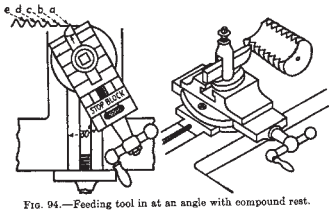


Fig. 94.—Feeding tool in at an angle with compound rest.

ways of figuring tapers, rapid thread cutting, cutting a double or triple thread, cutting Brown & Sharpe worm threads, using dial indicators, and much, much more.

There are many tables describing tapers, V threads, square threads, ACME threads, grinding angles on many different tools, and more.

Colvin was editor emeritus of American Machinist Magazine, and was the Colvin of Colvin & Stanley fame that turned out American Machinist Handbook and countless texts. The man was an expert machinist.

Here's a great little book at a great little price that you can't afford not to have, especially if you consider yourself a beginner on a lathe. Excellent book! Bargain price.
5-1/2 X 8-1/2 softcover 117 pages
No. 4708 $6.95

How to Run a Lathe 1942

by South Bend Lathe Works
reprinted by Lindsay Publications

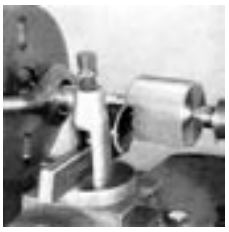
South Bend Lathe probably still produces a modern edition of this book at a much higher price. We've reprinted this 1942 edition of "Run a Lathe" because copyrights on it have expired. It's new enough to be very similar to current edition, and yet old enough to be applicable to a lot of the older lathes still in use.

You get everything you need to set up a lathe and get it running. This is the lathe manual that Dave Gingery raves about.

You get eleven chapters: history and development of the lathe, setting up and leveling the lathe, operation of the lathe, lathe tools and their

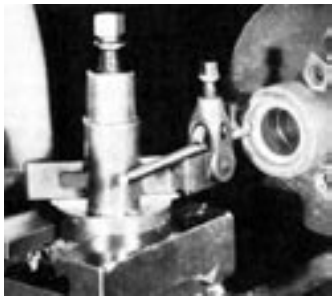
A CLASSIC! LOW COST!

application, how to take accurate measurements, plain turning (work between centers), chuck work, taper turning and boring, drilling reaming and tapping, cutting screw threads, and special classes of work. All the basics are here from sharpening drills to producing "superfinished" turned bearings, grinding valves, and turning multiple screw threads.



Remember, this is an introductory guide that was no doubt shipped with South Bend Lathes back then. Under no circumstances are you going to learn what is covered in "Advanced Machine Work". But this will get you going.

Great book. Great illustrations. And a great price! You can't afford not to have one now. 5-1/2 x 8-1/2 softcover 128 pages
No. 21150 $7.95

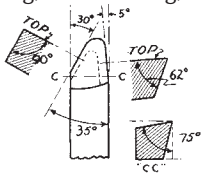


The Care and Operation of a Lathe

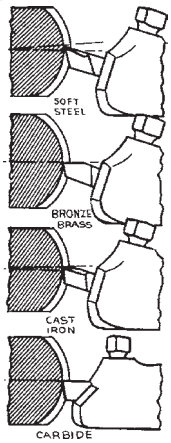
by Sheldon Machine Co, Inc
reprinted by Lindsay Publications

One of South Bend Lathe's competitors in 1942 was Sheldon Machine Co of Chicago. Sheldon saw the value of South Bend's How to Run a Lathe manual and apparently knew it had to publish its own. What resulted was a manual every bit as good as South Bend's, if not better.

Chapters include: the modern back geared screw cutting lathe, the basic parts of a lathe, the theory of metal cutting, grinding cutter bits for lathe tools, uncrating and setting up a lathe, oiling the lathe, setting up lathe tools, setting up the work on centers, turning, facing, knurling, thread cutting, drilling, boring,



cutting off, and more. You get directions on mounting work in three and four jaw chucks, drilling and countersinking centers, "Running-In" the lathe, discussions of the variety of tool holders, use of collets, tool-post grinders and much more!



You may not own a Sheldon lathe, but the small Sheldon lathe was a generic machine very much like those of South Bend and a dozen other manufacturers. You'll find it useful no matter what lathe you use.

Greatbook! Great illustrations! Great price! No lathe operator can afford NOT to have a copy of this. 5-1/2 x 8-1/2 softcover 112 pages
No. 21052 $7.50

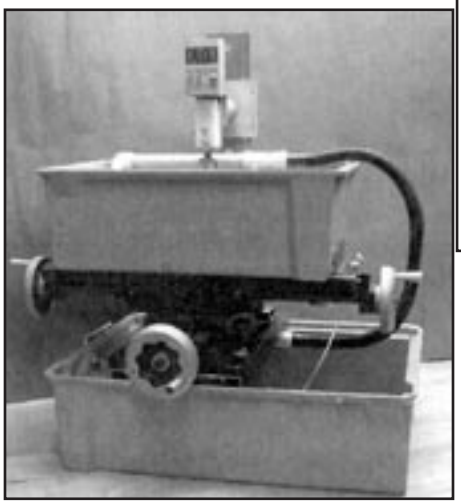
Build a Pulse EDM Machine

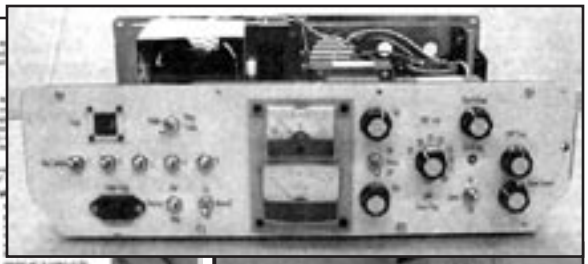
THE NEXT GENERATION

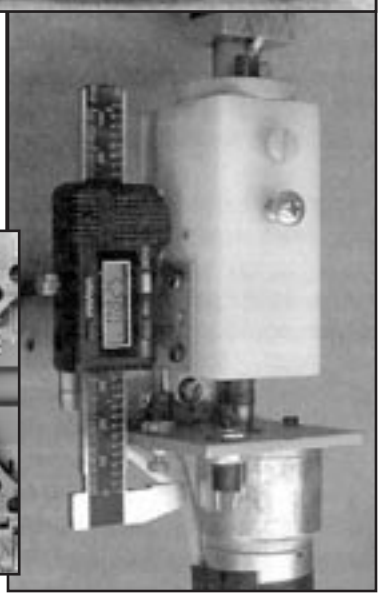
by Ben Fleming

With a pulse EDM machine it's possible to burn shapes into hardened tool steel and exotic metals, a task that is virtually impossible with conventional machining methods. A copper earring was used to burn a reverse image into tools steel, from which a copper impression was then made --- all done in less than 30 minutes!

Explore industrial-kept secrets of how pulse EDM works. You'll learn to build the power supply from the schematics (no point-to-point wiring diagrams) or using a commercially available printed circuit board. You'll learn to build the precision servo head with complete electrode-indexing capabilities, the dielectric tanks, filtering system, and more.





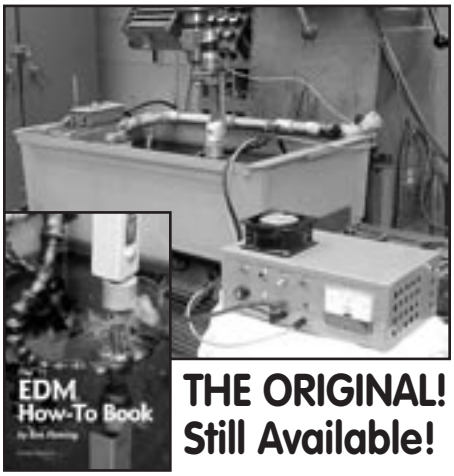


Chapters include EDM history, overview of electrical and mechanical components, the power supply, building the supply, the servo, indexing, depth control, finish the job, dielectric and filter selection, tank and pump selection, the back slide, tank assembly, the spark, electrodes, flushing, your first burn, jewelry manufacturing and EDM tips, glossary, reference materials, and more.

You're allowed to build this machine for your own use. But if you think you can build this design and sell it, then you need to get a license from Ben. He's put an enormous amount of energy into perfecting this in recent years and deserves to be rewarded for his efforts. It's an amazing achievement.

This book arrived just as this catalog is going to press. The price on the back cover is $49.95, but current our price is ten dollars less. I don't know if that means if the current lower price is a temporary discount price or not. Doesn't matter. If this is valuable to you, GET IT NOW. The price may go up soon. (Losers are always a day late and a dollar short. Winners are always ahead of the game.) It's a great book. Worth having. We've got a copy here for you. 8-1/2 x 11 softcover about 128 pages

No. 1656 $39.95



THE ORIGINAL! Still Available!

EDM HOW-TO BOOK

by Ben Fleming

The original RC EDM machine. Complete construction details.

Great book. High quality. A simple, highly effective machine. Worth having. 5-1/2 x 8-1/2 softocover 161 pages

No. 1584 $24.95

Preface

...In the summer of 2006, I completed The EDM How-To Book... There is much to be said for the simplicity and ruggedness of the RC EDM power supply, but it was not a true EDM in the eyes of many. I was constantly asked if I could design a pulse EDM for more precision work.

...I have worked more hours and spent more dollars than I want to think about trying to figure out how to get one to work. This book is the accumulation of many hundreds of hours of experimenting and learning.

Before beginning to build a machine you should ask yourself: "what is the intended purpose of building a pulse EDM?" If all you are wanting is the ability to burn out the occasional broken tap or drill perhaps a much simpler, easier-to-operate, and much less expensive machine, a Resistor Capacitor RC-type EDM will serve the purpose. Such a machine is described in my previous book, The EDM How-To Book. For those who are new to EDM the difference between the two is that the RC type machine uses a capacitor, discharged across the gap to remove metal. The pulse machine does not discharge a capacitor; instead the spark is controlled by a timer and power Mosfets.

One of the main advantages of a pulsed supply is decreased electrode wear (in most cases) and increased cutting speed. As with most things, this comes at the cost of increased power supply complexity, which is more prone to failure and much more expensive to build.

With a pulse machine, work such as that shown in the photo... To achieve such results, the Chuck E. Cheese token was burned into tool steel for 20 minutes using a 200µs ON time. Then, for 25 minutes, the burn ON time was decreased to 25µs. The image was then buffed with jeweler's rouge for about 10 minutes.

If the need is for a "tap burner" and electrode wear is not a serious issue, then I suggest building the simpler RC supply. If there is a need for doing accurate EDM work, such as squaring corners in milled pockets or machining difficult shapes in steel or other exotic metals, or finer finish work such as jewelry work, then a pulse machine is most likely exactly what you are looking for...

"Lil Bertha" Electric Furnace

by Dave Gingery

Let Dave show you how to melt aluminum and brass with electricity! If you have good ventilation and are careful, you can melt indoors, rain or shine. Electricity isn't cheap, but it's no more expensive than charcoal, and it's right there in the wall — all you need. Best of all, you can dial up the heat you need on thermostat, put the metal in the crucible, and go ram up your molds. After the metal melts, it will sit there at pouring temperature until you're ready. The furnace will practically watch itself.

You can build this high performance electric furnace that runs at 1800° practically forever for very little money. And it's surprisingly easy.

Not only that, you can use Lil' Bertha to calcine investment molds, carburize and heat treat metal, forge, temper, anneal, enamel, fire ceramics, and many other tasks. If you go to the trouble of getting the harder-to-find high temperature electric element, you can fire at 2300° for extended periods, making this furnace ideal for melting brass!

Dave will show you how to size the furnace to fit your needs, where to get and how to handle crucibles, make the electrical calculations, and more. This is typical Gingery material — top rate wall-to-wall how-to. Order a copy. 5-1/2 x 8-1/2 softcover 67 pages.

No. 4163 $10.95

Making Crucibles

by Vince Gingery

Melting metal requires the application of heat to a container containing the metal. The container we usually use is a crucible. You can buy high quality crucibles, or you can make them. Even if you buy the best commercial grades, they eventually wear out and sometimes break. If you build the necessary simple equipment to make your own crucibles, you'll have an endless supply of quality, low-cost units of exactly the size you need.

Making a crucible is merely a process of shaping clay into the proper shape and firing it. In other words, this is about making pottery.

You'll learn about how crucibles were made a century ago, making a PVC mold, clay composition, ramming up, firing the crucible, making crucible tongs, making a concrete mold, making a mold press, safety rules and precautions, and more.

The only fancy piece of equipment you'll need is a lathe to create the wooden mold. Vince uses his metal lathe, of course, but a wood lathe will do the job.

And like all other Gingery books, this is loaded with a disgusting number of photographs and drawings, with plenty of detailed how-to "thrown in" just for kicks. In other words, this is classic Gingery practical "how-to-do-it."

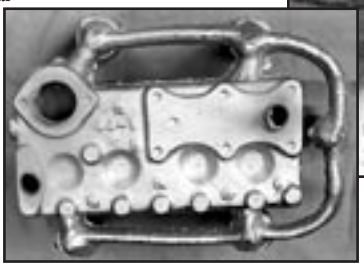
If you do nothing more than dream about pouring metal someday, I think you're a fool not to have a copy of this. It's good. Get one. 5-1/2 x 8-1/2 booklet 64 pages

No. 1551 $9.95

Steve Chastain's

METAL CASTING

A Sand Casting Manual for the Small Foundry



You get more than just a "do-this do-that" text. Steve, a mechanical engineer, has extracted essential detail from industrial handbooks, tempered it by his own experiences, and delivers it in a no nonsense style that we can use. This is info you can adapt to your own operation.

Volume 1 chapters include how to make a matchplate vibrator, wooden flasks, flask hardware and an aluminum flask. You get construction details on the basic "Gingery" charcoal furnace, and construction details on a 2450˚ crucible gas furnace with cam operated lid. You'll get details on forming sheet metal into the transition pieces that you'll probably need for blowers. You get useful details on thermcouples and their use in making a homemade pyrometer.

You get details on the types of sand, bonding agents, their effect on molds and coremaking, Petrobond and more. Steve covers coremaking: cement bonded cores, bolted and leaded cores, core setting jigs and more. You'll even see cores used to cast the old Packard V-12 engines.

You get simple formulas you can punch into a pocket calculator to help in design of ladles, avoid problems with core buoyancy, calculate the weight of crucible full of molten metal and more. He talks about problems, for instance, encountered with ramming up molds with Petrobond and how to solve them.

Volume 2 chapters include solidification of metals: the differences between pure metals and alloys. Then aluminum alloys are discussed: effect of alloying, grain refiners, heat treatment, hardening, melt reactions, practice and more.

Chapter 3 covers copper alloys: bronze, brass, aluminum bronze, and more. Chapter 4 launches into iron: the effects of carbon and silicon, ductile iron, alkali fluxes, alloying elements, etc.

The next three chapters cover gating, directional solidification, heat loss from risers, making insulated riser sleeves, pattern allowances for shrinkage, match plates, making rubber molds, making a vacuum chamber (for rubber molds), making a match plate, and more.

Chapter 8 provides useful foundry projects: a sturdy flask lock, a knee operated air valve, variations of the aluminum flask, making piston castings, cylinder head castings, and casting piston rings.

And you get the usual biblography, appendices, list of suppliers and all that.

Great stuff from the head sand-crab. Same quality as his other books. Consider it carefully. 5-1/2 x 8-1/2 softcover more than 200 pages

VOLUME 1
No. 1560 $19.95

VOLUME 2
No. 1564 $19.95

Hardening, Tempering, Annealing & Forging of Steel

by Joseph V. Woodworth
reprinted by Lindsay Publications

One of the great advantages of steel is the machinist's ability to change its hardness simply by heating and cooling the steel in specific ways. You can make steel rock hard and brittle through hardening. You can soften it somewhat and make it less brittle by tempering. And if you want totally soft steel you can anneal it.

This 1907 third edition will show you industrial state of the art as it was then. It may be old, but the processes haven't changed. And when you see that this book is all how-to and practical recommendations together with great illustrations, you'll understand that this book is worth having.

Especially valuable information on making, hardening and finishing all types of tools, including mills, drills, taps, reamers, dies, countersinks and more. But be careful! This is old technology, and it can be very dangerous if you're not careful.

Get a copy of this helpful and useful book. Put one in your reference library. You'll have it when you need it instead of calling us someday and having us ship a copy by overnight courier at three times the price (IF we still have it then). Order a copy today!

5-1/2 x 8-1/2 softcover 288 pages
No. 20498 $12.95

Building an Atmospheric Forge & Heat Treat Oven

by Bill Goodman & Bob Holmes
published by Gingery Publishing

Dave Gingery writes in the foreward–

"When I first saw the Goodman/ Holmes forge I was impressed with its appearance. When it was fired and I saw it perform I was persuaded that it was a practical project for a how-to manual and I urged Bill and Bob to go for it....

If you are working with metal you will eventually want to raise it to high temperatures to change its state, its shape or its degree of hardness. This piece of equipment will enable you to do it.

There are several unique features of this amazing piece of shop equipment. The most outstanding feature is the high output atmospheric burner. The cleverness of arranging twin flames that impinge on each other results in a single concentrated flame that raises temperature rapidly. But radial holes that admit the extra primary air, thus eliminating the need for a blower, are the master stroke..."

Unka Dave is right. When it comes to wanting to precisely heat treat a tap or other tool, this is the device you and I need.

This is the usual Gingery quality: drawings, parts lists, how-to, even details on the pyrometer. This is a gas fired unit, so you can use LP gas or propane. Excellent project. Heat treating steel is an essential part of metal working. This will give you the precise control you need. Order a copy. 5-1/2 x 8-1/2 softcover 72 pages
No. 1558 $15.95

Build A Carbon Arc Torch

by Don Meador

Put a large electrical current between a slightly separated pair of carbon electrodes and you get a 9000˚ F flame useful for melting metal, welding and brazing. Meador will show you how to build a carbon arc torch using wood, tubing and commonly available carbon electrodes. You really don't need much money or expertise to build an excellent working torch.

You do need a source of high-amperage current such as an arc welder, or use the simple water resistor below. 5-1/2 x 8-1/2 booklet 30 pages
No. 1349 $8.95

Water Resistor for Carbon Arcs

by Don Meador

Build the necessary water resistor that allows you to plug your carbon-arc torch directly into a standard outlet. You get design equations and theory, and practical how-to on turning a five gallon pail and common materials into a safe, heavy duty resistor. 5-1/2 x 8-1/2 booklet 52 pages
No. 1440 $9.95

Salvage Carbon Rods (for carbon arc)

by Don Meador

You can extract carbon rods from used batteries, remove the chemicals, and insert it into a thin-wall brass tube for use in the torch described above. Chemicals could be dangerous if improperly handled. Interesting. 5-1/2 x 8-1/2 booklet 19 pages
No. 3029 $5.95

How to Build an Abrasive Saw Cutoff Attachment

by Kenneth Dixon

Build a metal cutting abrasive saw using little more than angle iron, a sheet of plywood, and an abrasive cutoff disc. It's a hinge device that is tailored to bolt to your circular saw frame.

If you already have a saw and some angle iron, you can build a powerful new tool for just a few dollars. Like any power saw, an abrasive cutoff saw can be dangerous, but the author's model has been used successfully without incident for quite some time now. Low cost, detailed plans with drawings, dimensions, how-to and photos. Get a copy. 5-1/2 x 8-1/2 booklet 15 pages.
No. 1500 $6.95

Mighty Metal Miter

by Don Meador

With this simple jig you can make accurate square and angle cuts in metal from 20 feet long down to inches in length.

The author writes:

"The cost of this book and the cost of the parts will be recovered the first day the Mighty Metal Miter is used. I've seen simple square cutting metal chop boxes for $170. But, the Mighty Metal Miter can make compound cuts. I have not priced a metal cutting compound miter, but one that cuts only wood can be found for $359. I don't know how anyone that works with metal can pass this one up."

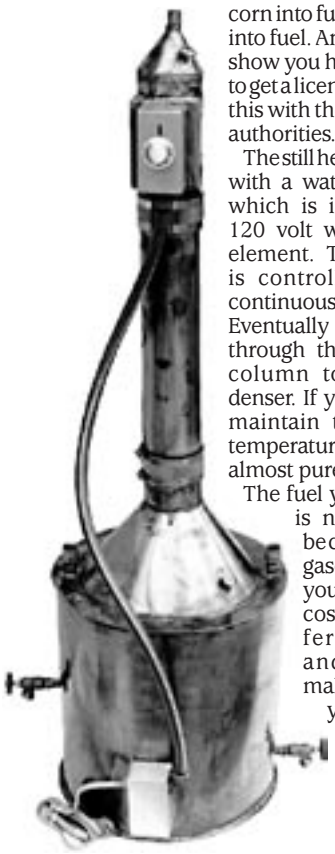
Uses an abrasive cutoff blade on a common power saw. Straight forward booklet. Consider it carefully. 5-1/2 x 8-1/2 booklet 29 pages
No. 1459 $8.95

Secrets of Building An Alcohol Producing Still

by Vince Gingery

When shortages occur, an intelligent person knows that instead of trying to stockpile gasoline, you can make your own substitute out of sugar, corn, potatoes, or almost anything you can ferment into alcohol. This still will remove the water, creating almost pure alcohol, nearly 200 proof, so you can burn it in just about any type of engine.

Here Vince will teach you how to take common plumbing parts, copper sheeting, and standard electrical parts and build a 6 gallon capacity still. He'll show you how to malt, mash, and ferment corn into fuel and turn it into fuel. And Vince will show you how easy it is to get a license and do all this with the blessing of authorities.



The still heats the wash with a water jacket in which is immersed a 120 volt water heater element. Temperature is controlled with a continuous thermostat. Eventually vapors boil through the rectifying column to the condenser. If you carefully maintain the precise temperature, you'll get almost pure alcohol.

The fuel you produce is not going to be cheaper than gasoline unless you have a low cost source of fermentables and want to make a version you can fire with scrap wood or coal. But if you can't buy gasoline at any price, alcohol even at three or four dollars a gallon is a bargain. I suppose you could use the still to make whiskey and brandy, but it's illegal.

Great book! Be independent. Thumb your nose at the corner gas station. Build a still, and make fuel. Order a copy. 8-1/2 x 11 softcover 76 pages

No. 6060 $12.95

One very brain-dead customer returned this book complaining that the still is heated with electricity. I was stunned. Geez...You don't have to use electricity. I'd heat it with scrap wood. It's the other complicated details that Vince explains that makes this book so valuable.

MOONSHINE!

by Matthew B Rowley

From the backcover —

...All the information about getting a novice's distillery going is provided – from simple still making to mash and fermentation techniques, plus 24 popular recipes. Whiskies, fruit brandies, grappa, schnapps, New England style applejack, even rum and cachaca: they're all here, with instructions adapted for the beginner. Because if you're going to make liquor, you'll want to make the best you can. And as author Matthew Rowley underscores, "Making whisky

or brandy is not the least bit difficult. Making something you'd want to drink... well, that may take some practice."

Fascinating book! Detailed how-to. History. Recipes. Nonsense. Fun reading even if you don't drink.

You get step-by-step instructions on putting together a five gallon copper still with all the details necessary so that you don't poison yourself. You get recipes that will let you turn corn into bourbon, grape wine into brandy, and barley malt beer into Scotch. Even if your brain is frighteningly soft because you've already put away too much hooch, you'll still be able to make booze.

Without permits, it's illegal. You know that. But the author will tell you how to get those permits. And as always, this info is directly applicable to making ethanol fuel.

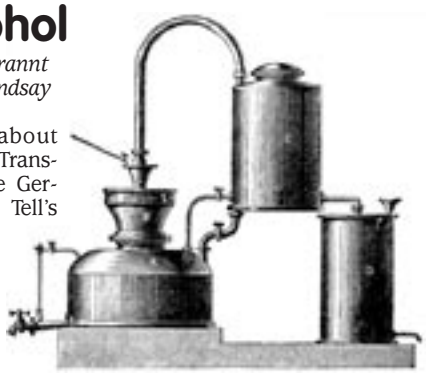
Fun book. I don't drink the stuff, legal or otherwise, but it still looks like a fun project. If nothing else put a copy in your reference library. No telling how long this book will be available. 8x9 softcover 175 pages

No. 6193 $14.95

A Practical Treatise on the Raw Materials and the

Distillation & Rectification of Alcohol

by William T Brannt reprinted by Lindsay Publications



This is about making booze. Translated from the German in 1885. Tell's ya things other books don't.

Chapters include alcohol, alcoholometry, raw materials, formation of alcohol, preparation of vinous mashes, preparation of alcohol from amylaceous raw materials (starch), distillation of the vinous mash, rectification and purification of spirit, preparation of liquors, preparation of liqueurs or cordials, receipts of liqueurs (what you know as recipes), and liqueurs prepared in the warm way.

It's all about making booze from grapes, malt, potatoes, rice, corn, and more.

Here you get details on how rum was (and probably still is) distilled in the West Indies, how Scotch is made, corn whiskey, and dozens of other potions. And you get the most complete instructions I've ever seen on turning potatoes into alcohol. Fuel up your motorscooter! Or make gin, vodka, blackberry brandy, or absinthe.

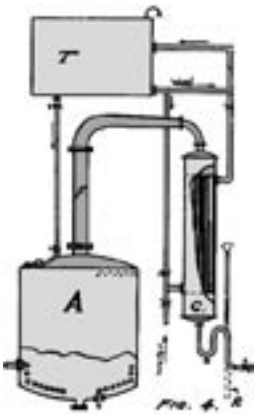
Great book! Wood engravings of stills and other hardware. One of the best I've seen. Get a copy!. 5-1/2 x 8-1/2 softcover 330 pages

No. 23179 $17.95

Manufacture of

Whiskey, Brandy and Cordials

by Irving Hirsch reprinted by Lindsay Publications

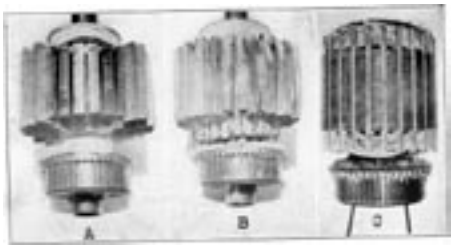


In 1937 the author, a chemical engineer, put together this industrial handbook to teach others how to produce hard stuff. Chapters include whiskey, treatment of grain, rye whiskey, distillation of liquors, distillery equipment and appliances, manufacture of brandy, of applejack, of pear brandy, of slivowitz, of fruit brandy, of rum, of gin, of miscellaneous liquors, of cordials, blending, maturing of spirits [very important], artificial maturing of spirits [trade secrets?], clarifying liquors, water, sugar and syrup, coloring and much more.

We're not talking about small moonshine stills or "white lightnin' " that tastes like liquid fire. This is good stuff. We're dealing with big stills and big processes the way the pro's did it and are probably still doing it. You get diagrams of many different types of stills, condensers, filters and so on. You get recipes for everything from gin to creme de cocoa. You get useful tips on blending scotch whiskeys, problems that occur if whiskey stays in bond too long, problems with sweating casks and much more.

Excellent, rare information. Order a copy today! 5-1/2 x 8-1/2 softcover 183 pages

No. 20935 $9.95



Generator Secrets

by S. W. Duncan
reprinted by Lindsay Publications

Here you get the secrets the old boys knew in the 1930's about taking an auto generator and converting it into a 110 volt 60 cycle AC alternator that could power their farm or home. It's all nuts-and-bolts how-to. Great stuff.

The specific examples in the beginning chapters give detailed instructions for rewinding a Ford Model A, Model T, and Dodge Type G generators. Later chapters talk about the general principles that can be applied to almost any generator. That's where the real value of this small book lies.

Chapters include: changing Ford Model A generator to 110 volt alternator, constant voltage at variable speed, converting Dodge generator to a 110 volt 500 watt self-excited ac generator, changing T model to 110 vac generator, making field and armature coils, change Delco generator to 110 volt AC, the winding of automobile armatures, characteristics of DC generators, suggestions on mechanical construction of generators, figuring a new winding for an old frame, a farm light plant to 110 volt AC, and glossary of definitions.

You learn how to build a simple coil winder, a reactor for welding, a magnetizer for magneto magnets, winding bobbins, a growler, and more.

This book is not applicable to modern automobile alternators. You must start with an old generator and go from there. Obviously, you won't use a Ford Model A or T or even an early Dodge. You'll use what you can find. And generators are still available... at scrap yards on old vehicles, even on eBay... at very reasonable cost. About two years ago I had the generator rebuilt on my forktruck. Put a new regulator on it, too. Generators are still in use. You have to look for them. They aren't going to come to you.

Get a generator and rewind it. Burn it out. Rewind it again using the information you learned from your mistakes. Get another generator, and rewind it, too. Sell it. Recover the money you "lost" on your mistakes. (Money "lost" on mistakes is not money lost at all. It's the tuition you pay to learn in the school of hard knocks. It's money invested, not lost.)

After you've learned how to rewind, you can do it as a sideline business, write a book showing others your experiences, or get a really large generator to wind as a high power alternator.

You aren't going to find this on TV. Secrets from decades ago. Originally called "AutoPower". Good stuff. Reasonable price. Valuable alternate energy info. Get a copy! 6x9 softcover 56 pages

No. 4791 $6.95

CONVERT WOOD INTO CHARCOAL AND ELECTRICITY

by Richard H. Buxton

If you put wood into a pipe and heat it, gas, tar and water vapor will be driven off. You can pipe this gas around into the fire that is heating the pipe. When the whole unit cools, you can extract high grade charcoal, noticeably superior to the grocery store variety you use on your grill.

If you route the generated gas through a series of primitive, low cost, easily made filters, you end up with a fuel that will power a lawn mower engine which can drive an alternator to charge batteries. In other words, you can make electricity from wood!

Foundrymen! Homesteaders! Survivalists!

Buxton will show you how it's done. He'll show you the unit he built from common brick, a piece of well casing, old plastic buckets, heater hose, an old Chevy truck radiator, silicone adhesive and so on.

His main goal was to melt metal. He had built Stewart Marshall's cupola, but just didn't get the results he expected. He traced the problem down to the coke he was using. After he started using his homemade charcoal instead of coke, he started melting iron like crazy! You can do the same.

The author lives in the Appalachians and has access to a lot of hardwood. You may want or need to consider making charcoal from hardwood scavenged from pallets. And last I heard, scrap pallets "grow" almost everywhere. Making charcoal is essential information for the foundryman.

The homesteader and survivalists will find the idea of turning wood into electricity a valuable skill. You can generate gas from any old wood, not just hardwood, and in fact, I wonder if you could convert brush, leaves, maybe even grain to electricity. It's an idea to try. True, you're only generating small amounts of power, but it's enough to power lights, radios, refrigerators, etc like those used by campers.

This is about a proven idea that needs to be taken to next level by experimenters. And that means YOU. Get a copy of this heavily illustrated report on how he did it and the results he got. It's unusual and certainly worth having in these uncertain times. Order a copy! 5-1/2 x 8-1/2 softcover 63 pages

No. 22873 $9.95

Homebrew Wind Power

by Bartmann & Fink

"A hands-on guide to harnessing the wind."

"Harnessing the wind can be a tricky business, but in this ground-breaking book, the authors provide step-by-step, illustrated instructions for building a wind generator in a home workshop. Even if you don't plan on building your own turbine, this book is packed with valuable information for anyone considering wind energy. It covers the basic physics of how the energy in moving air is turned into electricity, and most importantly, will give you a realistic idea of what wind energy can do for you – and what it can't."

If you really intend to get into wind power, you must have this.

Chapters include: introduction, renewable energy basics, power in the wind, electricity from a spinning shaft, furling and regulation, shop safety, mold building, coil winder, frame, tail, magnet rotos, stator, rectifiers, alternator assembly, blades, rotor assembly, towers, raising, failures and prevention, scaling it up or down, sources, glossary and more.

This is good stuff. Well written theory and how-to.

"...Now center the 3 inch pipe (spindle housing) on the stator bracket, shown at right in Figure 9.12. The height of the spindle should be the same as that of the pipe. The spindle housing has the 2-1/2 inch diameter hole you cut in one side. If you cut the hole off center like we described earlier..."

Great book. Somewhat expensive, but in view of what you get, it's cheap. I've seen too many energy books in this price range that are rip-offs. (You can get them from other book dealers, not me.)

Again, If you really intend to get into wind power, you must have this. I haven't seen this kind of quality since the 1970's. Get one. 8x10 softcover 320 pages

No. 2097 $39.95

Unka Dave Gingery's Shop Notebook

translated, deciphered

and illustrated by Vince Gingery

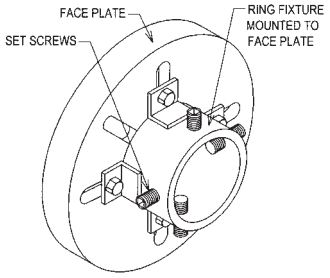
Yup. Dave Gingery over the years accumulated a good many small hints, tips, tricks and projects in his notebooks that never made it into his famous machine shop series.

Poor ol' Vince dug through years of the accumulated chicken scratch (I said "scratch") and has laboriously deciphered it, built the projects, produced drawings and photographs along with text that makes sense.

If you can't find just one useful idea in it, you're in real trouble, son. You must be brain dead! ('course that never stopped me...)

Included are plans for a truly useful wooden workbench and rod rack, tricks and advice on layout, drilling, reaming, thread tapping, grinding, holding square stock, sacrificial faceplates, making lathe fixtures, and more.

You'll find a great jig, very simple to build, that will allow you to

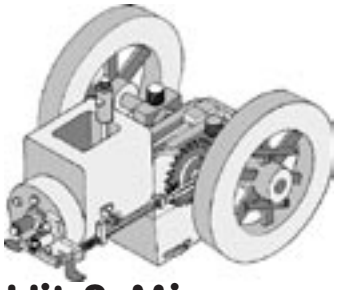


grind lathe cutters at precise angles with a standard grinder. And Dave's notes on building a miniature rotary table and its use is worth the price of the booklet alone.

You'll see examples of how Dave overcame problems in finishing a head for a small engine as well as special jigs and tooling that have served him well over the years.

Discussions of each topic are short and to the point with the typical Gingery detail and illustrations. Great stuff. Worth having. Dave's chicken scratch.... Scratch! I said scratch... 5-1/2 x 8-1/2 booklet 56 pages

No. 1528 $7.95



Hit & Miss Engine Plans

by Harold Depenbusch

Build a water cooled one-lunger with a 1-1/8" bore and 1-1/2" stroke. No castings needed. Well illustrated and detailed info on fabricating the cylinder, base, flywheels, crankshaft and all other components. Published by the author. 8-1/2 x 11 booklet 40 pages

No. 1252 $21.95

Large Gas Engines

by Percy Allen, Cassier's Magazine
reprinted by Lindsay Publication

Giant engines! A bore of 42" inches with a stroke of five feet! Running at 50 to 75 rpm its job using its 3000 hp was to blow 50,000 cubic feet of air per minute into Carnegie blast furnaces in Youngstown!

You get technical details on giant 2-cycle and 4-cycle IC engines in the US, Britain and Europe used for making steel, pumping water, turning alternators, and more. You get scores of photographs and a fair number of drawings showing the working details.

"Engines on steroids!" Get a copy. 5-1/2 x 8-1/2 softcover 64 pages.

No. 23098 $7.95

The teacher told my kid, "An apple a day keeps the doctor away." He said, "What do you got for cops?"

-Rodney Dangerfield

You've got the brain of a four-year-old boy, and I bet he was glad to get rid of it.

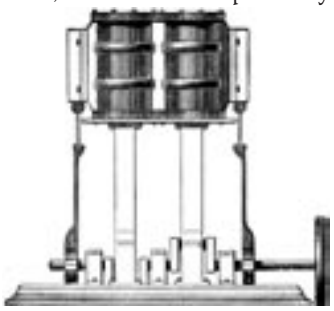
-Groucho Marx

Model Engine Making

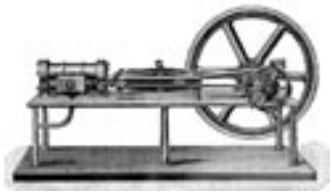
by John Pocock

You get the original series of 1880's articles that appeared in Amateur Work Illustrated Magazine in England. In 1886, the articles were re-released as a book, somewhat dumbed down.

These are small simple engines built from castings available in England at the time. Making your own castings was considered "too difficult", and it probably was for them, but not for us. The plans may



not be dimensioned, but they are are to scale. Make yourself some full-sized dimensioned drawings as the author suggests, and build



one of these steamers. I wish I had time to give it a try. Great ideas!

You get single-action oscillating engine, double-action horizontal slide valve engine, vertical engine, locomotive with oscillating cylinders, double-cylinder launch engine, marine engine, and model locomotive described in fourteen chapters.

Why not develop the patterns yourself and cast multiple sets for friends or for sale? Perhaps someone has already done that...

If nothing else, nothing else at all, this is a fascinating look into the beginnings of model engineering. Cheap. Worth having. And did I mention that it's cheap? Get one. 5-1/2 x 8-1/2 softcover 64 pages

No. 23705 $9.95

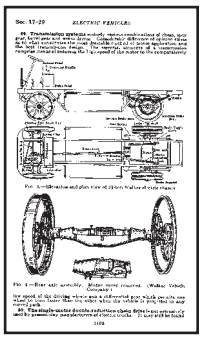
Standard Handbook for Electrical Engineers

Electric Vehicles 1922 and Storage Batteries

by Carroll & Winship
reprinted by
Lindsay Publications Inc

In 1922 electric trucks only traveled about 18 mph... BUT! They were carrying five tons of freight!

Here you get engineering details on electric vehicle state-of-the-art as it was in 1922. You get the Electric Vehicles chapter along with chapters on electric vehicle batteries and alkaline storage batteries (Edison batteries) from the The Standard Handbook for Electrical Engineers.



Discussions include passenger cars but most of the discussion is about commercial trucks and tractors. You get illustrations showing the types of gear drive, the frame layout, rear axle assembly, and more. You get short paragraphs discussing brakes, battery requirements, tires, platform trucks, wheel construction, frame design, vehicle motors, motor windings, vehicle resistance, controllers, methods of charging both Edison cells and lead-acid batteries, circuit diagrams of chargers, and more. You get charts that list various trucks and their specifications and capacities, data on charge and discharge rates for various typical batteries of the day, specs on available electric vehicle motors and more.

Then you get a number of pages examining electric vehicle batteries, how cells were assembled into batteries and used, and similar details on Edison batteries.

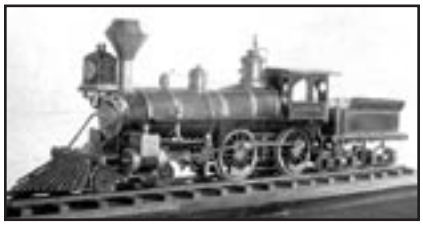
This is not how-to. This is a handbook that an engineer would dig out to learn about the electric vehicles available and how to use them, most likely, in the factory in which he worked.

If you're dreaming of building an electric auto, this will give you historical background that you need. Ignorance is very expensive. This book is cheap. It will set you back far less than a single lead-acid battery. So get one! 5-1/2 x 8-1/2 softcover 63 pages

No. 23730 $7.95

The Boys' Book of Engine Building

by A Frederick Collins
reprinted by
Lindsay Publications



How to make steam, hot air, and gas engines and how they work, told in simple language and by clear pictures.

You open the book and the first thing you see is a photo of a very fine live steam model of an American locomotive. Then Collins tells you it was built by a 17-year-old. Now if that doesn't make us look like lazy bums, I don't know what does. I would be proud to say I built that at any age.

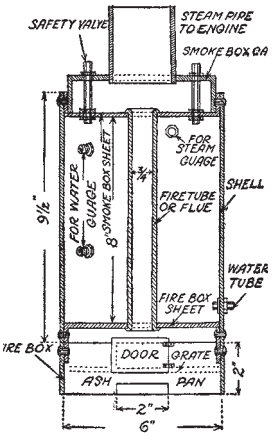
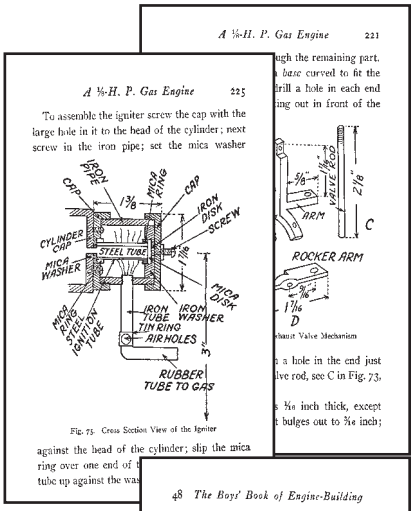


Fig. 38. Cross-section View of the Copper Boiler


A ½-H. P. Gas Engine 225
To assemble the igniter screw the cap with the large hole in it to the head of the cylinder; next screw in the iron pipe; set the mica washer
IRON PIPE
CAP
MICA RING
CAP
IRON DISK SCREW
CYLINDER CAP
STEEL TUBE
MICA WASHER
MICA DISK
IRON TUBE
IRON WASHER
TIN RING
AIR HOLES
MICA RING
STEEL IGNITION TUBE
RUBBER TUBE TO GAS
Fig. 73. Cross Section View of the Igniter
against the head of the cylinder; slip the mica ring over one end of t
tube up against the was

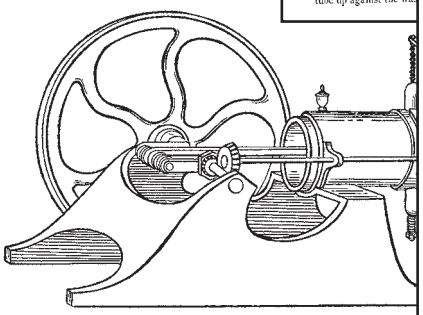
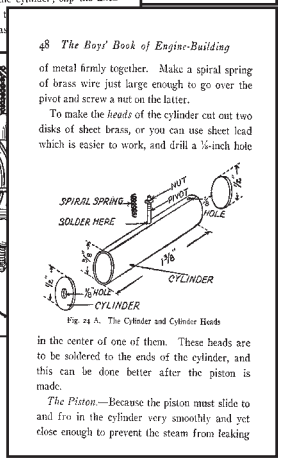


Fig. 79. The Model Gas Engine Complete


48 The Boys' Book of Engine-Building
of metal firmly together. Make a spiral spring of brass wire just large enough to go over the pivot and screw a nut on the latter.
To make the heads of the cylinder cut out two disks of sheet brass, or you can use sheet lead which is easier to work, and drill a ⅛-inch hole
SPIRAL SPRING
SOLDER HERE
NUT
PIVOT
HOLE
1⅛
CYLINDER
⅛ HOLE
CYLINDER
Fig. 24 A. The Cylinder and Cylinder Heads
in the center of one of them. These heads are to be soldered to the ends of the cylinder, and this can be done better after the piston is made.
The Piston.—Because the piston must slide to and fro in the cylinder very smoothly and yet close enough to prevent the steam from leaking

But Collins was trying to say any boy can build simple engines and have fun running them. That means you can, too. And here's a slow paced – remember this is for boys – and easy to read text that will show you the fundamentals.

Chapters include: the first engines, two simple steam turbine engines, a simple piston steam engine, a 1/24 hp horizontal steam engine, making small boilers, fittings for model engines, a model Atlantic type locomotive, steam – the giant power, a hot air or caloric engine, a 1/8 hp gas engine, and more.

You're told how to make the patterns for the castings. Collins suggested taking the patterns to a foundry (there were many around in that day) to have them cast in brass or iron, but that if you poured the castings yourself you could claim you built the entire engine. Collins assumed no boy would have a metal lathe, so he recommended having the cylinder bored by a machinist. But that's something you can do. (If you don't have a lathe, then it's time to build the Gingery lathe.)

If you've already built the Gingery/Lewis Atkinson Differential engine, then this 1918 book might be a bit tame for you. But if you're just starting out, here are some projects to try. It's fun reading for anyone with 10W-30 in his veins (or sloshing around in his head), and it's a great gift for a kid (and all those middle-age kids you hang out with)!

Fun reading. Informative. Simple. Get a copy! 5-1/2 x 8-1/2 softcover 261 pages
No. 23489 $12.95

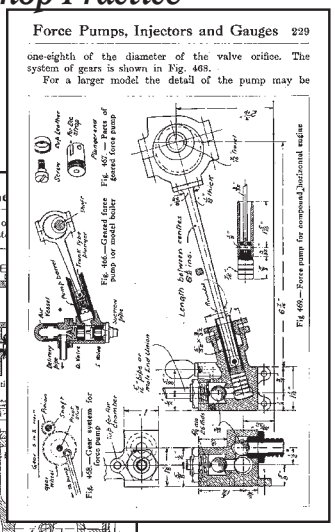
MODEL ENGINEERING

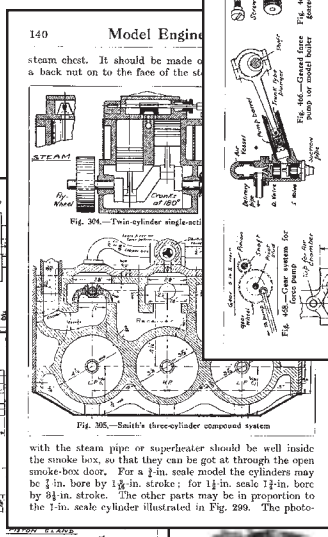
A Guide to Model Workshop Practice

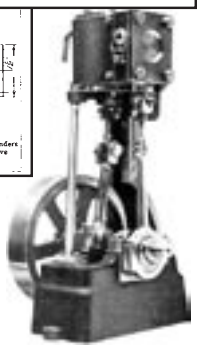
by Henry Greenly
reprinted by
Lindsay Publications Inc

Bernard Jones, in 1915, compiled this incredible book of plans, how-to, and ideas contributed over the years to "Work Illustrated" by Greenley. From the editor's preface:

"This book is the work of a thoroughly practical engineer possessing unequaled experience of model making, and it is addressed to the amateur desirous of learning how mechanical models, chiefly prime movers, operate and how they can be made in the home workshop. It fully describes the tool equipment necessary, shows how to use the tools and how to execute the numerous handcraft processes involved, and then enters into the details of steam, petrol and electric models; it shows the functions of the various parts, and explains, step by step, the actual amateur workshop methods of building them up, the reader being taken easily and gradually through the construction of ever part and the assembling of the complete models, these including boilers steam engines, internal-combustion engines, steam locomotives, electric locomotives, permanent ways, power hammers, cannon, etc. etc...."


Force Pumps, Injectors and Gauges 229
one-eighth of the diameter of the valve orifice. The system of gears is shown in Fig. 468.
For a larger model the detail of the pump may be
Fig. 469.—Force pump for compound horizontal engine


140 Model Engine
steam chest. It should be made o
a back nut on to the face of the st
STEAM
Fig. 304.—Twin-cylinder single-acti
Fig. 305.—Smith's three-cylinder compound system
with the steam pipe or superheater should be well inside the smoke box, so that they can be got at through the open smoke-box door. For a ¾-in. scale model the cylinders may be ¾ in. bore by 1⅜-in. stroke; for 1¼-in. scale 1¼-in. bore by 2¼-in. stroke. The other parts may be in proportion to the 1-in. scale cylinder illustrated in Fig. 299. The photo-
Fig. 299.—"Outside" cylinders for 1-in. scale locomotive

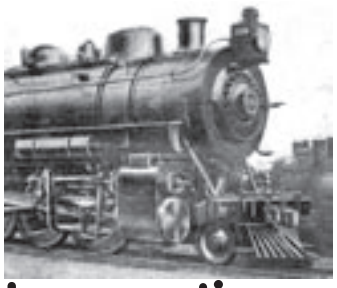


engine cylinders; engine cranks, connecting rods, bearings and eccentrics; steam engine valve and reversing gears; model boiler design and construction; model boiler and engine valves and fittings; force pumps, injectors and gauges; firing model boilers; historical and other scale glass-case models; making a model 1-in. by 1-in. vertical steam engine; a high-speed compound condensing engine and coil boiler; a 1/2-in. scale model midland railway express locomotive; working model metropolitan railway electric locomotive; internal combustion engines; model railway engineering, miscellaneous working models, and model G.C.R. Express locomotive.

This incredible book seems to cover just about everything from building a cannon and a crane, to classic locomotives and steam engines. And you get great details on the practical how-to necessary to build these operating models. Wall-to-wall illustrations will show you fire tube and flash steam boilers, the tricks of turning a crankshaft from solid stock, details of a Watt beam engine, model power boats, and on and on.

Most publishers would price this book much higher. Wall-to-wall how-to, ideas, tips and tricks from someone who knew what he was talking about. It should be in your reference library. Get one. 5-1/2 x 8-1/2 softcover 407 pages.
No. 23128 $24.95

Chapters include: equipment of a model engineer's workshop; the lathe and its fitments; notes on lathe work; the various processes employed; model steam-engine cylinders; types of model steam



Locomotive Construction and Repair

by Fowler, Mellin and Jones
reprinted by Lindsay Publications

Here you get five publications in one cover for one very reasonable price. Four 1910-12 booklets reveal the details of how steam locomotives were designed. A fifth covers "Railway Repair Shop Practice".

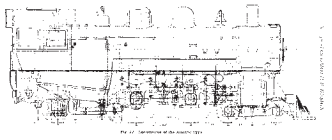
Part I covers the boiler, cylinders, throttle valve, piston and piston rods. Part II explores valve motion: theory, calculation, design and details of the Walschaerts motion.

Part III will teach you the details of the smoke box and exhaust pipe, frame, crosshead and guide bar, connect and side rod, crank-pins and axles, and the driving wheels and their counterbalancing. Part IV covers spring rigging and equalizers, the trucks, cab and its fittings and accessories, and the tender. These four sections are well illustrated with drawings, diagrams, charts, and formulas.

The fifth section concerns maintenance of locomotives. Learn about dismantling the locomotive, boring and re-lining the cylinders, work on the valves and valve seats, operations on the piston and rod, driving wheels and crankpins, driving box repairs and more. Lots of photographs.

From early issues of Machinery Magazine. Top quality info, straight to the point. If steam power, railroad locomotives, or history of technology is your thing, You need a copy. Consider it carefully. 5-1/2 x 8-1/2 about 226 pages

No. 23780 $12.95



SOME OF THE TOPICS COVERED:

Comparison of Early and Modern Locomotives • Handling Engines Bodily • Locomotive Erecting Department • Overhauling Big Engines • Portable Oil Forge • Shop Trestles • Boiler Test Outfit • Wheeling a Locomotive • Wheel Revolving Outfit • Rotary Snow Plow • Rolling Doors for Roundhouse • Boring Valve Chamber • Planing Frame Seats • Planing Joint Faces of Cylinder • Radius Planing of Saddle • Planing Several Cylinders at One Setting • Cylinder Stud Hole Jigs • Milling Steam Ports • Portable Boring Apparatus • Boring the Work on the Lathe • Portable Outfit for Milling Ports • Grinding in Cylinder Heads • Grooving Tools and Taps • A Jig for Pistons and Follower Plates • Piston Ring Tools • Grinding the Rods • The Use of Rolling Tools or Burnishers on Rods • Tools for Machining Packing Rings • Piston Valve Parts • Construction Details of Valve and Cage • Machining the Valve Cage • Arbor Used for Turning Cages • Milling the Ports in the Cage • A Valve Chamber Bushing Mandrel • Attachment for Milling Ports in Cages • Jigs for Steam Chest Valve Chamber and Valve • Forcing Cages into Place • A Method of Removing Valve Bushings • Babbitting Crossheads • Shoe Babbitting Fixtures • Babbitting Gibs • Other Babbitting Fixtures • Details of Locomotive Crosshead • Planing Crossheads • Details of Crosshead Guides and Yoke • Shaping and Grinding Guides • Machining the Yoke in the Shaper • Aligning Guides • Side Rod Details • Drilling Main Rods • Milling Rod Ends • Making the Channeling Cut • Milling the Sides of Rod Forgings • Slab Milling the Edges • Milling the Round End • Forcing Brasses into Place • Straightening Rods • Methods in Various Shops • Slotting Rod Ends • Fixtures for Brasses • Expanding Mandrel for Solid Brasses • A Typical Box • Machining the Box for the Brass • Planing the Brasses • Press for Forcing Brasses into Boxes • A Planing Fixture • Planing End of Box in Shaper • Boring and Facing Operations • A Guard for the Boring Machine • Tools for Boring and Finishing Corner Radius • Babbitting Operations in Other Shops • Tools for Finishing Both Sides of Shoes in One Operation • Shaper Tools with Backstroke Release • Fixture for Milling Shoes and Wedges • Hollow Milling Tumbler Shafts • Turning Journals on the Shaft • Fixture for Machining Links • Hand Grinder for Links • Operations on Eccentrics • Making Brass Rings • Typical Frame Construction • Planing Frame Section • Handling Frames in the Forge Shop • Laying Out Bench for Frame Work • Setting the Frames Over the Pit • Machining Driving Wheel Centers • Allowances for Putting on Tires • Turning Tires in the Lathe • Turning Treads and Flanges of Truck Wheels • Tread Forming Tools • A Built Up Tire Forming Tool • Gage for Measuring Wear of Flange and Tread • Lifting Rig for Wheel Lathe • Lifting Device for Tires • Tire Lifting Tongs • Heating and Removing Tires • Types of Tire Heaters • Pressures for Forcing Axles and Crank Pins into Hubs • Keyway Layout Gage • Crank Pin Turning Fixture • Fitting New Crank Pins • Finishing Crank Pin with Roller Tool • A Modern Wheel Shop • Features of the Building • much more!

RAILROAD SHOP PRACTICE

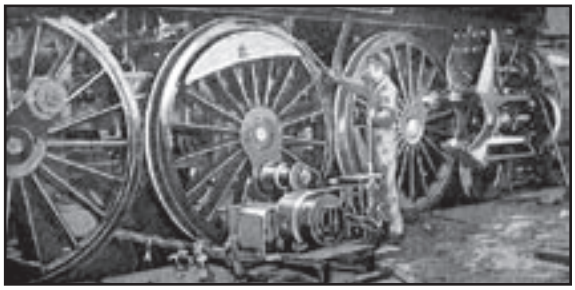
Methods & Tools

by Frank A. Stanley

From 1917 through 1919 Frank Stanley, contributing editor of AMERICAN MACHINIST MAGAZINE, toured railroad repair facilities throughout North America including those run by Southern Pacific, New York Central, Pennsylvania, Santa Fe, Northern Pacific, Chicago & Northwestern, Canadian Pacific and others.

In 1921 the collected articles along with additional material from Stanley and a number of authors was collected into this incredible book. You get details into the dismantling, repair and reassembling of engines. You get scores of unusual photographs and a large number of dimensioned drawings for the homemade tools developed by various shops to keep the railroad running.

"Everyone" knows that old steam locomotives used tires that wore out and had to be replaced. Imagine it's your job to replace the tires on 77" drivers. What size should they be



so they will shrink fit properly? Then what should you know about turning them in a wheel lathe? And what does a tread forming tool look like? Geez... you'll even find dimensioned drawings for a gage that will measure wear of the flange and tread. How do you get the old tire off? And on, and on... (I remember my grandfather telling me about replacing tires. He had seen it done many times. This is what he knew.)

This is apparently a very scarce book. And for good reason. Any loco nut lucky to have a copy is not going to part with it. It's essential not only to those who restore old locomotives, but is exceptionally valuable to live steamers and other modelers, as well as all railroad buffs. This is an exceptional window into a technology that is no more.

After you read this, you'll appreciate how hard those old time machinists had to work to earn a living. (I'm glad it was them and not me.)

Great book. One of the good ones. For those who appreciate railroading. A book to have. Get one! 5-1/2 x 8-1/2 softcover 331 pages

No. 23870 $19.95

Chapters

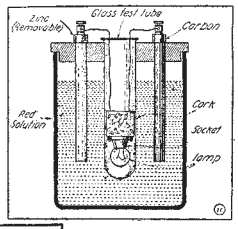
The Work of The Railroad Repair Shop • Operations On Locomotive Cylinders • Machining Pistons and Piston Rings • Piston Valves, Cages and Rings • Tools for Crossheads and Guides • Connecting Rod Operations • Making Driving Boxes • Machining Shoes and Wedges • Eccentrics, Links and Tumbling Shafts • Locomotive Frame Work • Driving Wheels and Axles • Wheel Shop Equipment and Methods • Machining Pipe Joints and Other Parts • Brass Tools for Locomotive Valves and Fittings • Some Portable Tools and Appliances • Special Tools, Cutters and Tool Room Methods • Air Pump, Hose Coupling and Misc Devices • Blacksmith Shop Equipment and Work • Boiler Shop and Flue Work • Tools and Methods Used On Steel Car Work • Welding Operations On Locomotives and Cars • Reclamation Work • Handling Materials In The Railroad Plant

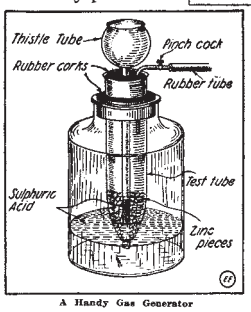
A Thousand And One Formulas

The Laboratory Handbook for the Experimenter

by Sidney Gernsback
reprinted by Lindsay Publications

Here you get 1920 formulas on cements and glues, compositions of all kinds, glass and glass working, inks, leather polishes, metal-craft, perfumes, soaps, photography, blue-print and other papers, plating, pyrotechny, polishes and stains, varnishes and paints, cleaning compounds, woodcraft, chemical lab hints, mechanical lab hints, electrical lab hints, miscellaneous formulas and an appendix.





A Handy Gas Generator

Not everything here is useful in my opinion, and some of it is downright dangerous. Learn how to convert coin silver into pure silver, formulas for solders, lithographic ink, how to make a gasoline torch, recipes for killing flies, proper use of sulphuric acid, hand grenades ???, flashlight powder like the old photographers once used, how to make gas (you need a book for this??), homemade carbon crucible, methods to copperplate carbon motor brushes, and on and on.

A lot of this is quaint, and not directly useful. It's for kitchen chemists. But a few of the formulas and ideas are worth the entire price of the book. Fun reading if nothing else. Get a copy! 5-1/2 x 8-1/2 paperback 160 pages

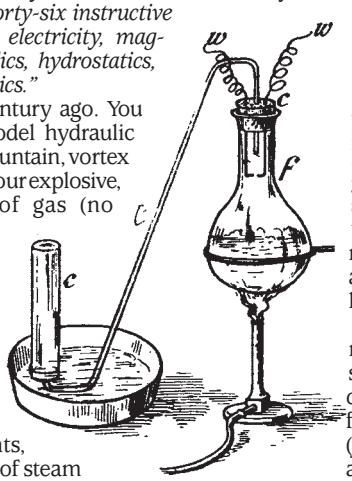
No. 20811 $9.95

Simple Scientific Experiments

by Aurel de Ratti
reprinted by Lindsay Publications

"Describes forty-six instructive experiments in electricity, magnetism, hydraulics, hydrostatics, light and acoustics."

From a century ago. You can build a model hydraulic ram, acoustic fountain, vortex (smoke) rings, flour explosive, manufacture of gas (no beans needed), static electric motor, cheap x-ray tube (look out!), electromagnetic gun, pea suspended in air, high frequency currents, decomposition of steam with an induction coil, fiery or flaming vortex ring, thermo-electric currents and more.



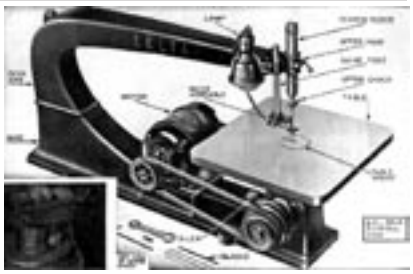
If you've never seen this stuff done, then it's certainly worth trying. But I guarantee you that the average American is so technologically ignorant, he'll think you're a genius when you show him one of these tricks. (Detonate the flour bomb, and watch 'im wet his pants!)

Simple, fun experiments. Amuse yourself and others. Great quick-n-dirty science fair projects. Cheap! (just like you)... so get a copy! 5-1/2 x 8-1/2 softcover 69 pages

No. 22660 $8.95

Getting the Most Out of Your Band-saw and Scroll Saw

by Delta
reprinted by Lindsay Publications



From the 1930's comes this booklet that will show you how to put your Delta scroll saw and bandsaw to work. Covers adjustments and use. Some metalworking, but mostly wood. Valuable tools when making foundry patterns. Heavily illustrated. 6x9 booklet 48 pages

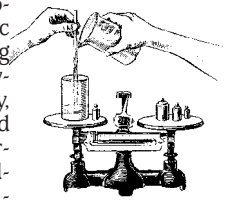
No. 21559 $5.95

Manual of Formulas, Recipes, Methods & SECRET PROCESSES

edited by Raymond Wailes
reprinted by Lindsay Publications

Here's a great low cost collection of hundreds of formulas on just about every subject you can imagine compiled from the pages of Popular Science Magazine and published in 1932.

You can make soap bubble liquids, solidified gasoline, waterproof matches, lacquer for brass, silver solder, photographic printing paper, slow-drying putty, blackboard paint, thermite welding mixtures, pewter alloy, garden sprays, soaps, preparations for dance floors(?), concrete waterproofing compound, fireworks, cosmetics, adhesives and much more.



You'll learn how to mix up compounds for polishing and plating metal. Learn how to blacken brass, blue steel, to make silver nitrate from old spoons, mix up low temperature alloys, dry flowers, brew wine, re-ink typewriter ribbons, make blueprint paper, dye cloth, make flypaper and much more.

Unlike other formularies, this one is new enough to be useful and old enough to have unusual formulas. Very reasonable price. Interesting book of definite value. Order a copy today. 4-1/2 x 8 softcover 250 pages

No. 20366 $9.95

How to Cast Small Metal and Rubber Parts

by William Cannon

This classic has been around almost twenty years. And for good reason. It delivers.

"Using this excellent sourcebook as a guide, you can easily make high quality, defect-free castings for almost any purpose... at amazingly low cost! ... making obsolete or vintage car parts, hood ornaments, garden and fireplace tools, kitchen utensils, automotive parts, replacing broken antique parts, reproducing sculpture, plaques, and other art... all kinds of decorative and useful objects for you own use or to sell!"

Chapters include casting methods, casting your own hood ornaments, alloys you can cast, make foundry equipment yourself, sands and flasks, make and pour molds, core making, problems and their causes, finishing castings, rubber and space-age substitute, making a top bow rest pad, making a four hole grommet, making door bumpers and check straps, making a fender lamp pad, metal molds for more precision, and more.

Great little book. We've handled it off and on over the years. If you haven't gotten your copy yet, then what are you waiting for? Get one! 5-1/2 x 8-1/2 softcover 168 pages

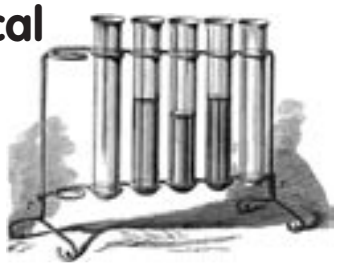
No. 117 $14.95

Lindsay's Chemical Cross-Reference

by Lindsay Publications Inc

If you haven't run into the problem yet, you will. You'll be reading some old chemical formula calling for mirbane oil, salt of satum, or liver of sulphur. A quick check of this handy list of chemical terms would tell you that you need nitrobenzene, lead acetate, or potassium sulphide.

What we did was enter into our computer two thousand chemical equivalents gleaned from a variety of chemistry textbooks, industrial references, and formularies in our reference library dating back to the early 1800's. The computer merged and sorted the lists into alphabetical order. The result is a chemical cross reference.



We have kept unusual and probably incorrect spellings. We have made no attempt to verify that the definitions are correct. What we have done is provide you with one master list of the best equivalents we could find. We've already found it useful, and you will too. Get a copy for your reference library. 5-1/2 x 8-1/2 softcover 44 pages

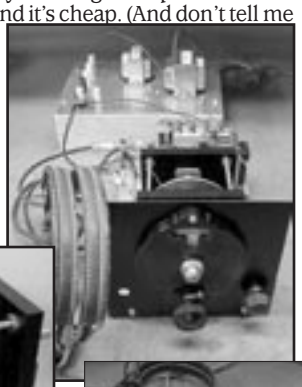
No. 20170 $5.95

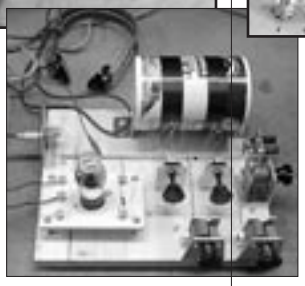
The Impoverished Radio Experimenter Series

Volume 1

Experimenter's notes on Vacuum Tube Substitutions, Inexpensive Tube Power Supply, Grid-Leak Detectors, Regenerative Receiver & more!

You must try building a simple radio with tubes! It's easy, and it's cheap. (And don't tell me that doesn't appeal to you...) Do you remember the excitement when you built your first crystal set? This is even better.





You can substitute later, common vacuum tubes for the rare, early types you see in early radio circuits and get a beautifully working radio. Why spend $10 to $30 for a 201A triode? A 6C4 or 6C5 will do the job. Here are tips, hints, suggestions and secrets for substituting common inexpensive tubes in early circuits.

You also get details on a crystal set that was converted to a grid-leak tube radio. You'll get details on how various tubes worked in the circuit.

Then you'll be shown how to build a simple and cheap power supply from parts you can buy from current electronic catalogs that will power a two or three tube radio.

You get pages of tube charts and basing diagrams, a reprint on tube theory from 1931, a bibliography of research papers from the late 20's, and you get a brief demonstration of a one-tube regenerative receiver built with a 6SN7 glass tube from the 1950's (had to scrape the mud off it) using a circuit from 1927. It uses a home-made variable capacitor and the home-made power supply described.

Early radio circuits are simple. You don't HAVE to use the exact parts specified. Mix, match, substitute and, above all, do it on the cheap. Old time radio fun for pennies. That's what it's about. Add this to your reference library. 5-1/2 x 8-1/2 booklet 48 pages

No. 22407 $5.95

Volume 2

You can wind a coil and hook it up to a capacitor, but how will you know if it's right? A grid-dip oscillator, or gdo, is a measurement device that will tell you. And it's very simple – first used in the 1920's.

Here, you learn to build a one-transistor model around the components you can salvage, steal or buy. You'll have a machine that makes coil winding, and tank circuit fabrication predictable rather than merely guess work. You won't need to have the exact coil form specified in that old magazine article. You can figure out for yourself how many turns to use.

You get instructions on gdo use from the manual supplied with the classic Millen gdo fifty years ago. You get photos of ads and specs so that if you want to buy a used gdo, and they're out there, you'll know what exists. You could even convert an old tube model to solid state.

You'll learn to use the gdo along with simple formulas that will put your tank circuits on the frequencies you want. You can use other formulas along with a known coil or capacitor to measure the value of an unknown coil or capacitor. In other words, for a radio builder, you gotta have a volt-ohmmeter and gdo. Otherwise, you're just wasting valuable time.

You'll learn how to take a pentagrid converter tube and build a one-tube shortwave converter that will put shortwave broadcast stations from around the world on a frequency that an ordinary AM radio, or crystal set.

Make a top rate slow-motion dial drive for your radio. Its 7.5 to 1 ratio makes tuning stations easy – far better than many expensive antique dial drives.

Make a simple rig for winding professional quality hi-Q space wound coils.

You get many more hints, tips, and ideas for exploration. Stop whining! Build your OWN parts. You can do it.

Valuable info. Cheap! Get a copy. 5-1/2 x 8-1/2 booklet 48 pages

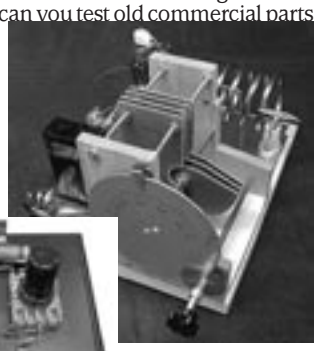
No. 22571 $5.95

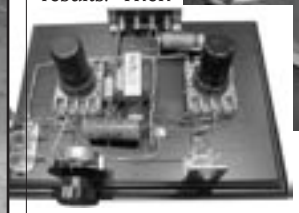
Volume 3

You can't build much of anything, mechanical or electrical, unless you have useful measuring tools.

Here you build a simple impedance bridge that will allow you to measure the value of inductors and capacitors. That means that if you find an old choke in a radio chassis in the alley, this will tell you whether it is 2.5 henries or 17 henries. This bridge will tell you if that old paper capacitor you removed from the underside is still .01 mfd or has changed.

Not only can you test old commercial parts of unknown value, you can also build your own capacitors and inductors and measure the results. Then you can intelligently use the parts to build all kinds of radio gear.





You'll find plans for a simple one IC oscillator that will put out a 150-1500 cycle tone. Use it on the bridge or for other tests. You'll get plans for another very simple one IC amplifier that will make a pair of low-impedance of "Walkman" type headphones, available almost anywhere, "look like" a pair of 2000 ohm phones which are not so easily found.

You'll learn how to make pointers for knobs, and shielded cases from low-cost lumber that will make your home-built gear look like expensive antique radios. You'll see a large homemade variable capacitor built from surplus printed circuit boards and shaft collars, and the simple one-tube shortwave regenerative receiver that was built around it.

Your impedance bridge will allow you to experiment with audio filters that will dramatically improve the selectivity of a regenerative receiver so that you can copy code in crowded amateur radio bands.

And you'll get some ideas for that larger power supply you'll need for more advanced receivers and transmitters.

Same nuts-and-bolts how-to. Heavily illustrated. More ideas than you'll be able to pursue in a month of Sundays. Get a copy! 5-1/2 x 8-1/2 booklet 48 pages

No. 22733 $6.95

"The Best Radio Books Ever Written"

that's the way one customer put it. That's arguable, but they *are* among the best written for beginners.

I wrote the series for the 15 year-old radio builder I once was. Back then I was puzzled and would ask men who considered themselves electronics wizards questions about the circuit. Their face would go blank. They didn't know squat, and I was embarrassing them. I had nowhere to turn for really good info.

Late in life I decided to write a series that a high-school kid could understand figuring that old men with the intellect of a 15 year-old (and I know way too many) could get results. The rest of us could use the ideas to take radio building to the next step.

The books and magazines I had were too brief and didn't explain much. Some articles were so complicated that I didn't stand a chance of understanding them.

So I set out to advise a 15 year-old. When a customer tells me they're the best, it means I must have achieved my goal.

(Will there be a number seven? Probably not. I'll retire before that ever happens. How many more months and years these radio books will be available at what price is unknown.)

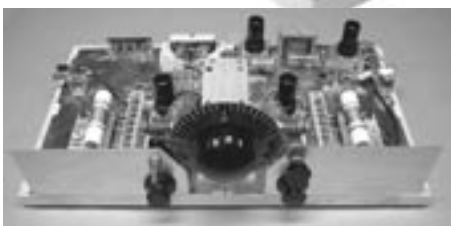
The Impoverished Radio Experimenter Series

Volume 4

Some guys think it's impossible to build a regenerative receiver as good as the National's old SW-3. That's bull. You should be able to build something every bit as good, if not better. And the ideas needed to do that are here.

First, we start out with a demonstration receiver that will hit you with many ideas, some of which you'll want to try. This receiver is a four tube regenerative with an RF amplifier (TRF). The first configuration uses two audio tubes with a passive audio filter in the back

end. The second version uses a simpler audio filter, and one of the audio tubes is



placed by a power tube that drives a loudspeaker to surprising volume.

Next, the shortwave converter idea of Vol 3 is taken to next step: a modern tube and a crystal controlled oscillator. When this unit was put in front of the TRF receiver, 15 meter (21 mhtz) amateur band signals came flooding in from all over the planet, loud, stable, and distinct.

Then to make tube experimentation easier and larger projects possible, we build a quality power supply capable of providing a wide range of voltages at high current levels.

Finally we explore slide rule dials. These simple, inexpensive fabrications of string and pulleys were used in millions of old broadcast radios, and they worked beautifully. You'll see how to built one from aluminum plate and simple pulleys that can be mounted on a homebuilt receiver. You get a slow motion dial drive with a long bandspread dial that makes your homebuilt receiver fun to use and will impress the socks off your half-wit in-laws.

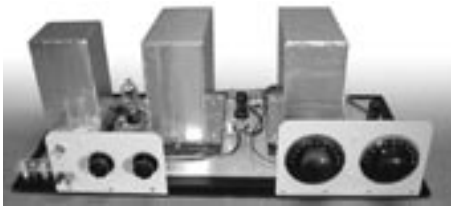
More useful ideas for the radio builder. With schematics, drawings, and photos. Jam-packed like the first three volumes. Get a copy! 5-1/2 x 8-1/2 booklet 48 pages

No. 22920 $6.95

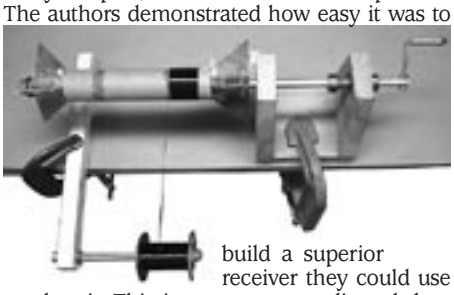
Volume 5

Here you get details on building a three tube superhet that is actually easier to build than the regenerative receiver shown in Vol 4, but easily outperforms it. Three inexpensive octal tubes mounted in plastic relay sockets, driven by homemade IF transformers made from cardboard boxes and aluminum foil, will deliver signals that are more stable and far more easily separated than any regen will. And you can power this radio with the simple power supply shown in Experimenter Vol 1.

This radio is an adaptation of a circuit that

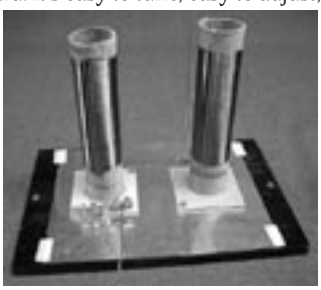


appeared in QST in August 1938. Then (and still today, I suspect) hams were terrified of superhets. The authors demonstrated how easy it was to



build a superior receiver they could use on the air. This is no more complicated than bolting three simple radios together: a pentagrid converter, an IF amplifier, and a detector/BFO.

You wind the IF transformers on cardboard cores taken from kitchen plastic wrap, put them inside of corrugated cardboard boxes covered with aluminum foil. The whole radio is mounted on a pine board. It's easy to tune, easy to adjust, and you'll discover in an instant why regenerative receivers were relegated to the dumpster.



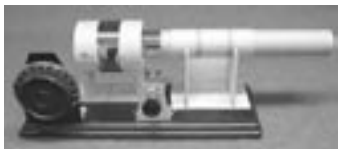
You also get plans on how to build a simple three-transistor oscillator that you use to align the receiver, and can use to align other receivers as well. You'll learn how to build a winder to make IF coil winding easier and a simple oscillator that you can use to check the frequency of junk IF transformers found in the alley or at a flea market.

This is so much better than a regenerative, easy to build, and it's dirt cheap. If you want to experience the same excitement that you did when you first heard a crystal set as a kid, then you have to move on and build bigger and better radios. And this is one you MUST try. It's great. You'll see. Get a copy! 5-1/2 x 8-1/2, 48 pages.

No. 22938 $6.95

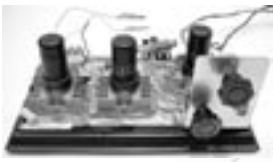
Volume 6

Build a loose coupler. It's a very early form of a doubly-tuned RF transformer – like an IF transformer but with variable coupling. If you haven't tried one on a crystal set, you should, especially if you live in an area where you have many AM radio stations. You build a loose coupler from cardboard tubes and sheets of cardboard. It's easy. Also included is a reprint of a construction article from a 1911 issue of Electrician & Mechanic Magazine that will show you how to build a fancy coupler just like the spark boys once used.



Then it's on to another power supply. Here, you'll learn how to use a commonly available transformer to get high voltage for vacuum tube plates. But the real beaut is the simple, low-cost regulator that will turn any power supply into a rock-solid performer. You can put the regulator on your existing supply and dial in just about any voltage you want. And that voltage won't change whether you draw 2 mA or 400! It's great for receivers but has the capacity to handle sizable tube transmitters as well.

Next, build a loop antenna. Several are shown. Attach the simple, low-cost two-transistor amplifier, and you have an artificial long wire. If you live in an apartment or have a small lot, this loop antenna can simulate a long wire and allow you to experiment with crystal sets. It's cheap but really performs.



Next, I'll show you how I took a loop antenna and turned a basic Franklin oscillator circuit into a regenerative receiver for the AM broadcast bands and lower. The receiver and antenna are simple to build and perform remarkably well. With the sensitivity of the regen receiver and the directivity of the loop I was able to pull in very weak stations 80 miles away in daylight from my basement. I was able to take the same receiver down to 60 khz to hear WWVB's digital time carrier from Colorado.

You get details on how to take almost any oscillator circuit and turn it into a receiver by attaching the necessary filters that sort out the various signals.

Finally, you get some notes on amateur band code transmitters. Also provided are some schematics and basic information on single tube transmitters I was able to build in a matter of minutes and put on the AM band. You can do it, too.v

Get started. Get a copy. 5-1/2 x 8-1/2 booklet 48 pages

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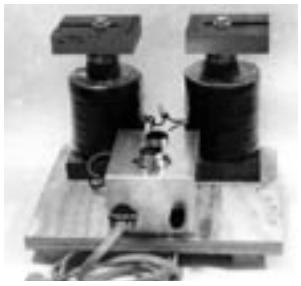
Gingery's Magneto Magnetizer

by Dave Gingery

Learn how to build a device to recharge old magneto magnets and create new iron magnets for experimental purposes. It's a proven device built from currently available materials, and at low cost.

This machine will not recharge newer alnico, samarium, and similar alloy magnets since these need an enormous magnetic impulse beyond the capabilities of this machine. And beside these newer magnets usually don't go "dead" like "plain" ones.



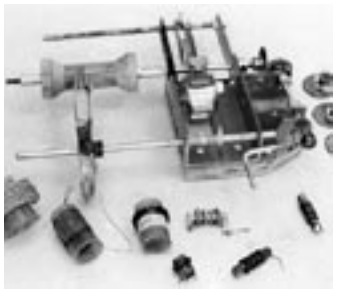
See how a magneto works, how to test one, how the magnetizer works and will show you in detail how to build one. He'll give you all the tricks on building the base, winding the coils, building and testing the power supply, and, of course, on using the machine. Order a copy today. 8-1/2 x 11 booklet 36 pages

No. 3008 $7.95

Coil Winding Machine

by David J. Gingery

Dave will show you how to build a coil winder like those available in electronics catalogs years ago from common, easily-obtained materials. Although it may look complex, it really is not. You'll find that it is easy to build. You don't need to be a mechanical genius, or need expensive tools. This little machine will wind universal and honeycomb coils, and even pi-spaced coils such as used for RF chokes and transformers.



To wind truly high-end professional spacewound coils like those in old IF transformers requires an understanding of coil geometry, the calculation of complex gear ratios, heart-shaped cams and special followers, etc. It's an art and a science. Here, you can expect to tinker with the friction drive until you find useable drive ratios that can give quite acceptable coils. This coil winder bridges the gap between the professional models and the impossible task of winding universal coils by hand.

This is a typical Gingery how-to book – loaded with illustrations, dimensions, and step-by-step detailed text. Excellent publication. Not a whole lot on use of the machine, and that's where tinkering will be needed. Order a copy. 8-1/2 x 11 booklet 24 pages

No. 386 $8.95

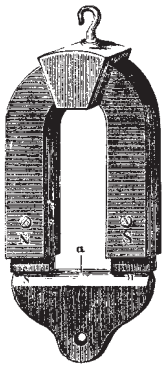
Old-Time Secrets of Making Permanent Magnets

from various sources
reprinted by Lindsay Publications

You CAN make powerful permanent magnets.

Here you get a collection of chapters, articles, bits and pieces from early physics texts and Machinery magazine and a complete reproduction of a 1919 booklet on permanent magnets published by the Esterline Co. In addition you get additional explanation of magnetism terms, other books you may want to acquire, and additional terms you'll need to understand if you are to become a sophisticated magnet experimenter.

You can make powerful permanent magnets, but they're not going to be as efficient as modern samarium or neodymium magnets.



But revealed are precisely the techniques used to create the powerful magnetic magazine used by Michael Faraday to invent his disc generator that so intrigues the perpetual motion and free energy crowd.

If you dream of building a slow-speed permanent magnet alternator or just want to tinker with magnets, you'll definitely find this of value.

Well illustrated. Unusual material. Good stuff. Get a copy! 5-1/2 x 8-1/2 softcover 120 pages

No. 23055 $9.95

Solenoids, Electromagnets & Electromagnetic Windings

by Charles R. Underhill
reprinted by Lindsay Publications

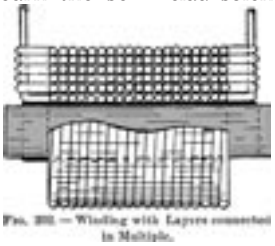


Fig. 232. — Winding with Layers connected in Multiple.

Here you'll learn the secrets of creating an electromagnet that generates a field of needed intensity, drawing minimal amperage at available voltage without overheating.

Chapters include: magnetism and permanent magnets, electric circuits, electromagnetic calculations, the solenoid, practical solenoids, iron-clad solenoid, plunger electromagnets, electromagnets with external armatures, electromagnetic phenomena, alternating currents, AC electromagnets, quick-acting electromagnets and methods of reducing sparking.

materials and bobbins, insulation of coils, magnet wire, insulated wire, windings, forms of windings, heating of windings, and tables and charts. There are also 233 illustrations listed showing everything from a practical multiple-coil winding to rim solenoids telescoped to form disk solenoids.

Build that perpetual motion machine that some people claim is possible. Or how about a flying saucer? Nuts. Just get a copy for your reference library... Excellent! 4-1/2 x 8 paperback 342 pages

No. 20960 $15.95

Experimental Crystal Set Receivers

ARTICLES FROM
MODERN ELECTRICS 1911-12
reprinted by Lindsay Publications

You'll be amazed by the wide variety of make-shift equipment in the early days. This isn't so much about crystal set circuits as it is about building the components needed much like VOICE OF THE CRYSTAL.

Build coherers, variable and adjustable condensers, loose couplers, sliders for tuning coils, making a universal detector, galena detectors, "tickers" for receiving Poulsen arcs and much more.

Early radio. You'll like it. Get a copy. 8-1/2 x 5-1/2 booklet 48 pages

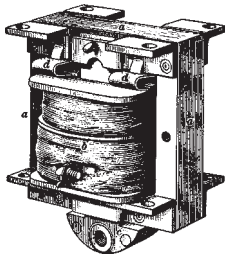
No. 23276 $6.95

Design of Magnets & Electromagnets

by T B Montgomery
reprinted by Lindsay Publications

Pump current through a copper wire and you get a magnetic field. Wrap that copper wire into a coil, and the magnetic field intensity increases dramatically. You've created an electromagnet.

Chapters include: electromagnetism, types of magnets used, forces developed from magnetism, magnet design procedure, and permanent magnets. You get a formula for finding the pull of a magnet and a complete design section with curves, formulas, and examples for creating clapper, solenoids, e-types, AC and DC electromagnets. You also get useful info characteristics of the different materials used in (1948) permanent magnets. Great easy-to-read-and-understand info. Order one! 5-1/2 x 8-1/2 softcover 96 pages

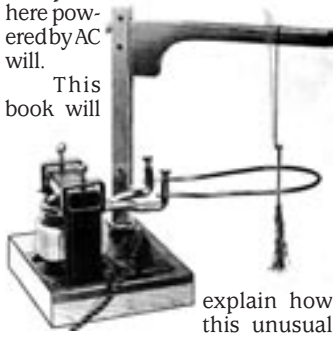


No. 21818 $9.95

Design, Construction and Operating Principles of Electromagnets for Attracting *Copper, Aluminum & Other Non-Ferrous Metals*

by Leonard R Crow

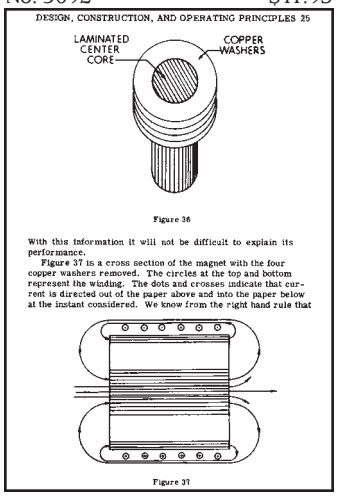
Wind a coil of wire around a cylinder, and you get an electromagnet called a solenoid that will attract iron and steel. But it certainly won't attract copper and aluminum. But the special toroidal coil described here powered by AC will.



This book will explain how this unusual electromagnet works, why it attracts copper, aluminum and similar metals with low electric resistivity, and show you how you can build one.

Small book, but loaded with unusual information. Reprint of a 1935 classic. Get a copy. 5-1/2 x 8-1/2 booklet 38 pages

No. 3092 $11.95



DESIGN, CONSTRUCTION, AND OPERATING PRINCIPLES 25

Figure 36

With this information it will not be difficult to explain its performance.

Figure 37 is a cross section of the magnet with the four copper washers removed. The circles at the top and bottom represent the winding. The dots and crosses indicate that current is directed out of the paper above and into the paper below at the instant considered. We know from the right hand rule that

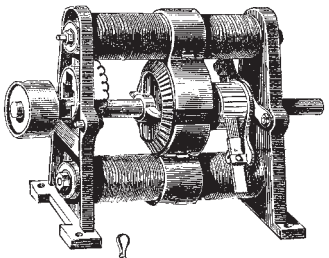
Figure 37

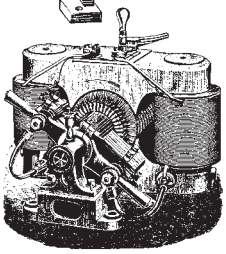
Dynamos & Electric Motors

How to Make Them and Run Them

by Paul N Hasluck
reprinted by Lindsay Publications

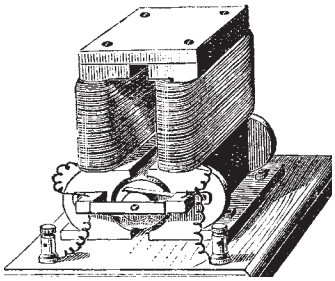
Another gem from Hasluck. You get a collection of articles from





"Work" magazine of which Hasluck was editor describing how to build your own electrical equipment.

Chapters include: the Siemens dynamo, the Gramme dynamo, the Manchester dynamo, the Simplex dynamo, calculating the size and amount of wire for small dynamos, ailments of small dynamo-electric machines, small electric motors without castings, how to determine the direction of rotation of a motor, how to make a shuttle-armature motor, fifty-watt undertype dynamo, and a four-hundred-and-forty-watt Manchester type dynamo.



Some of the motors and dynamos are small table-top machines which would make great experimental projects. You might be able to scale them up to generate significant power from a water wheel or windmill. Who knows? The 450 watt machine has interesting possibilities.

Lots of illustrations and details. Lots of information that can be adapted. Great lessons to be learned. Get a copy! 5-1/2 x 8-1/2 softcover 160 pages

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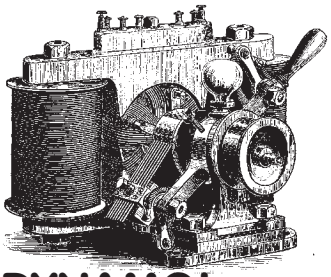

DYNAMO!

How to Make a Dynamo

by Alfred Crofts

How to Build a Fifty-Light Dynamo

by A. E. Watson

You get two books on building DC generators in one cover: Crofts (1900) – How to Make a Dynamo, and Watson (1895): How to build a fifty-light dynamo or four horsepower motor.

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Dynamos can be used as direct current generators or motors. You could probably build exact replica of these machines and get excellent results, but these machines needed soft iron castings for the field windings. You could use this a starting point and perhaps adapt the iron from an existing machine together with the instructions here to develop a hybrid.

Crofts gives you drawings of all the components from the shaft, commutator, shaft rocker, lubricator, the gramme motor, multiple windings and more.

This machine will power about ten 16 candle-power lamps, is about 16 inches wide and requires about 14 pounds of copper wire for the field magnets (more if shunt wound), with about 4-1/2 pounds for the amature.

Crofts book (British) contains much text explaining to the raw beginner what he's up against and how to get the machine generating electricity.

Watson's book (American) on the other hand contains detailed dimensioned drawings and less text. This is a big machine with a base about 34" long by about 20" wide. The field windings will require 38 to 42 pounds of copper wire, but remember this will generate four horsepower when used as an electric motor, and that's a continuous rating.

This will give you an idea of how primitive a machine can be and still produce useable amounts of energy.

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He transmitted voice without tubes! Without transistors! Far more amazing than Tesla!

The beauty of this paper is that it reveals who the players in the new field of radio were at the time when major advances were being made. A hundred footnotes will give you more articles and papers to explore. You get scores of patent numbers that can you can download.

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